

# Acer Altos G320 Series

## User's Guide

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Record the model number, serial number, purchase date, and place of purchase information in the space provided below. The serial number and model number are recorded on the label affixed to your computer. All correspondence concerning your unit should include the serial number, model number, and purchase information.

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Acer Altos G320 Series

Model Name : \_\_\_\_\_

Part Number: \_\_\_\_\_

Purchase Date: \_\_\_\_\_

Place of Purchase: \_\_\_\_\_

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# Notices

## FCC notice

Class A devices do not have an FCC logo or FCC IDE on the label. Class B devices have an FCC logo or FCC IDE on the label. Once the class of the device is determined, refer to the following corresponding statement.

### Class A equipment

This device has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

### Class B equipment

This device has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the device and receiver
- Connect the device into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/television technician for help

**Notice: Shielded cables**

All connections to other computing devices must be made using shielded cables to maintain compliance with FCC regulations.

**Notice: Peripheral devices**

Only peripherals (input/output devices, terminals, printers, etc.) certified to comply with the Class A or Class B limits may be attached to this equipment. Operation with noncertified peripherals is likely to result in interference to radio and TV reception.



**Caution!** Changes or modifications not expressly approved by the manufacturer could void the user's authority, which is granted by the Federal Communications Commission, to operate this server.

**Use conditions**

This part complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**Notice: Canadian users**

This Class A/Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

## Laser compliance statement

The DVD-ROM or CD/DVD combo drive in this server is a laser product. The drive's classification label (shown below) is located on the drive.

CLASS 1 LASER PRODUCT

**CAUTION:** INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.

# Important safety instructions

Read these instructions carefully. Save these instructions for future reference.

- 1 Follow all warnings and instructions marked on the product.
- 2 Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- 3 Do not use this product near water.
- 4 Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
- 5 Slots and openings on the back or bottom side of the chassis are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.
- 6 This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- 7 Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
- 8 If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed the fuse rating.
- 9 Never push objects of any kind into this product through chassis slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
- 10 Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.
- 11 Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
  - a When the power cord or plug is damaged or frayed
  - b If liquid has been spilled on the product
  - c If the product has been exposed to rain or water

- d If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal condition.
  - e If the product has been dropped or the cabinet has been damaged
  - f If the product exhibits a distinct change in performance, indicating a need for service.
- 12 Replace the battery with the same type as the product's battery we recommend. Use of another battery may present a risk of fire or explosion. Refer battery replacement to a qualified service technician.
- 13 **Warning!** Batteries may explode if not handled properly. Do not disassemble or dispose of them in fire. Keep them away from children and dispose of used batteries promptly.
- 14 Use only the proper type of power supply cord set (provided in your accessories box) for this unit. It should be a detachable type: UL listed/CSA certified, type SPT-2, rated 7A 125V minimum, VDE approved or its equivalent. Maximum length is 15 feet (4.6 meters).

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# 1 System tour

The Acer Altos G320 server is an entry level single-processor general purpose system. The system offers a new standard for flexible productivity ideal for small business or workgroup applications.

# Features summary

Listed below are the system's key features:

## Processor

- Single LGA775 socket supporting the following Intel® processors:
  - Pentium D processor
  - Pentium 4 processor
  - Celeron D processor
- 256 KB, 1 MB, 2 MB or 2x1 MB L2 cache
- 800 or 533 MHz FSB
- Supports the following Intel technology <sup>1</sup>:
  - Intel Dual Core Architecture
  - Supports Intel Hyper-Threading Technology
  - Supports Intel EM64T (Extended Memory 64 Technology)

## Chipset

- Intel E7230 MCH (Memory Controller Hub)
- Intel ICH7R I/O controller

## Memory

- Four DIMM sockets for a maximum memory capacity of 8 GB
- Supports 512 MB, 1 GB, and 2 GB DDR2-533/667 MHz ECC unbuffered memory modules
- Supports dual-channel interleave operation



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**Note:** Dual-channel memory requires that only DIMM modules of identical type, banking, stacking technology and manufacturer can be installed in the Altos G320 system.

<sup>1</sup> Support for dual core configuration, Hyper-Threading Technology and EM64T may vary depending on processor-type specifications.

### Media storage

- 3.5-inch, 1.44 MB floppy drive
- DVD-ROM or combo drive
- Three 5.25-inch device bays for add-on options:
  - DAT72 tape drive
  - AIT tape drive

### Optional media storage

- Supports up to four SATA or SCSI hard disk drives

### SATA controller

- Onboard SATA: Intel ICH7R I/O controller supports four SATA ports that offer data transfer rates of up to 3.0 Gbps
- Supports software RAID 0, 1, and 10 for onboard SATA ports

### Networking

- Intel 82541PI Gigabit Ethernet controller
- Intel 82573V Gigabit Ethernet controller

### PCI I/O

- Five PCI bus slots with three separate bus segments:
  - Two PCI bus slots (32-bit/33 MHz/3.3 V)
  - One x4 PCI Express bus slot (with x1 throughput)
  - One x8 PCI Express bus slot
  - One x8 PCI Express bus slot (with x4 throughput)

### Graphic interface

- ATI ES1000 video controller with 16 MB SDRAM

### I/O ports

- Front panel
  - Two USB 2.0 ports
- Rear panel
  - PS/2 keyboard and mouse port
  - Two USB 2.0 ports

- VGA/monitor port
- Serial port
- Two LAN ports (RJ-45)

#### Operating system and software

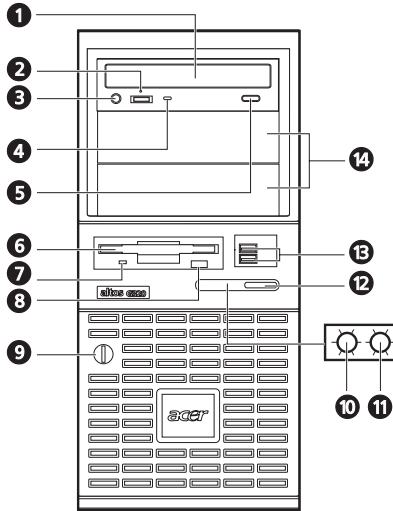
- Operating system options:
  - Microsoft® Windows® Server 2003, X64 edition
  - Microsoft Windows Server 2003
  - Novell® NetWare® 6.5
  - Red Hat Enterprise Linux 4.0, EM64T
  - Red Hat Enterprise Linux 4.0
  - SCO Openserver™ 5.0.7
  - SCO Unixware® 7.1.4
  - SUSE® Linux Enterprise Server 9.0
  - SUSE Linux Enterprise Server 9.0 EM64T
- ASM (Acer Server Manager)
- EasyBUILD (includes SATA/SCSI RAID Configuration Utility)

#### Power supply

- 400-watt ATX12 auto-switching power supply

# External and internal structure

## Front panel



No.	Component
1	DVD-ROM or combo drive
2	Volume control
3	Headphone/Earphone port
4	DVD-ROM or combo drive activity indicator
5	DVD-ROM or combo drive Stop/Eject button
6	FDD (Floppy disk drive)
7	FDD activity indicator
8	FDD eject button
9	Security keylock



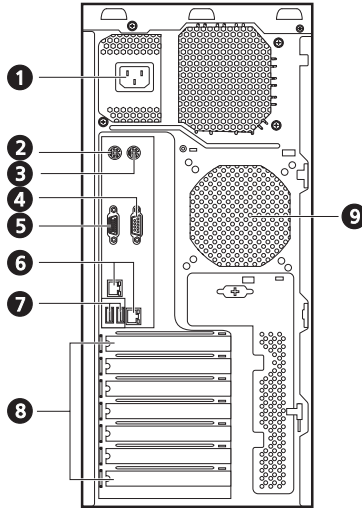
No.	Component
10	Hard disk drive (HDD) activity indicator
11	Power indicator
12	Power button
13	USB 2.0 ports
14	5.25-inch drive bays







## Front panel LED indicators

Below table lists the LED states on the front panel.

LED	Color	Status	Description
Power	Green	On	Power on
		Blinking	System in ACPI sleep mode.
HDD	Green	Blinking	HDD activity
		Off	No HDD activity

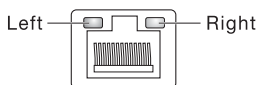
# Rear panel



No.	Icon	Component
1		Main power supply unit
2		PS/2 keyboard port
3		PS/2 mouse port
4		Serial port
5		VGA/monitor port
6		Gigabit LAN 1 and 2 ports (10/100/1000 Mbps)
7		USB ports
8		Expansion slot covers
9		Rear system fan

## LAN LED indicators

The LAN port features two LEDs that indicate the status of each port.

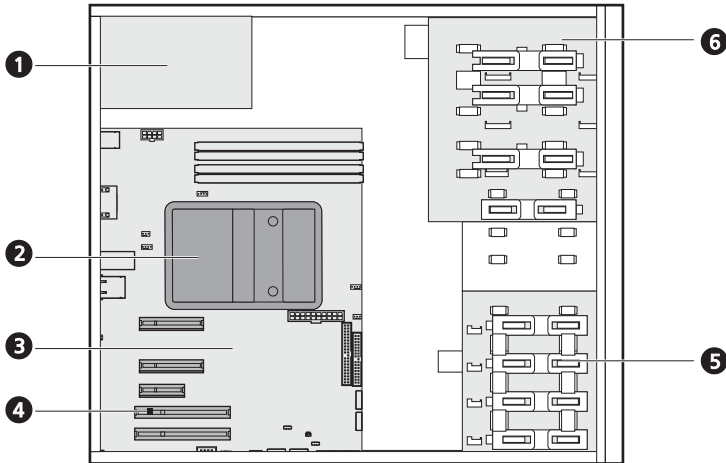


Below table lists the LED states on the LAN ports.

LED	Color	LED State	Condition
Left	Green (82573V)/	Off	LAN link is not established
	Yellow (82541PI)	On	LAN link is established.
		Blinking	Receive or transmit activity is detected.
Right	N/A	Off	10 Mbps data rate is selected.
	Yellow	On	100 Mbps data rate is selected.
	Green	On	1000 Mbps data rate is selected.

**Note:** The Intel 8257V NIC (Network Interface Controller) has a green indicator and 82541PI NIC has a yellow indicator on the top-left corner of their corresponding port.

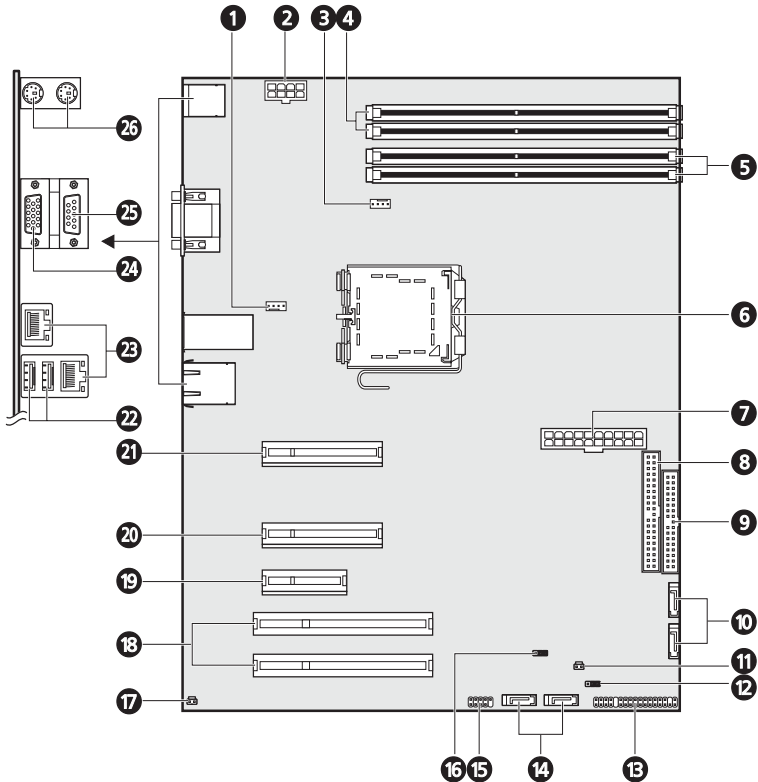
## Internal components



No.	Component
1	Power supply unit
2	CPU and HSF (heat sink-fan) assembly
3	Mainboard
4	PCI slot
5	HDD bays
6	5.25-inch device bays

# Mainboard layout

The mainboard becomes accessible once you open the system. It should look like the figure shown below.



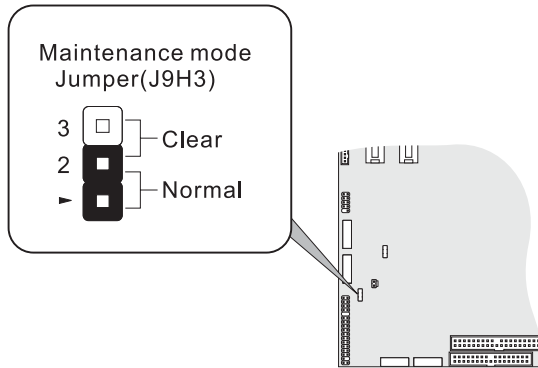
No.	Description
1	System fan connector
2	+4V power supply connector
3	CPU fan connector
4	DIMM 1B to 2B sockets
5	DIMM 1A to 2A sockets

No.	Description
6	CPU socket
7	+12V power supply connector
8	IDE connector
9	FDD connector
10	SATA port 2 and 3 connectors
11	SCSI status LED connector
12	Maintenance mode jumper
13	Front panel connector
14	SATA port 0 and 1 connectors
15	External USB connector
16	Clear CMOS jumper
17	Chassis intrusion connector
18	PCI slots (32-bit/33 MHz/3.3 V)
19	PCI-Express x4 slot (with x1 throughput)
20	PCI-Express x8 slot (with x4 throughput)
21	PCI-Express x8 slot
22	USB ports
23	Gigabit LAN 1 port (RJ-45)
	Gigabit LAN 2 port (RJ-45)
24	VGA/monitor port
25	Serial A port
26	PS/2 keyboard and mouse port

# Jumper settings

## Maintenance mode jumper

The J9H3 jumper is a 2-pin jumper blocks that is used to perform system maintenance mode options.

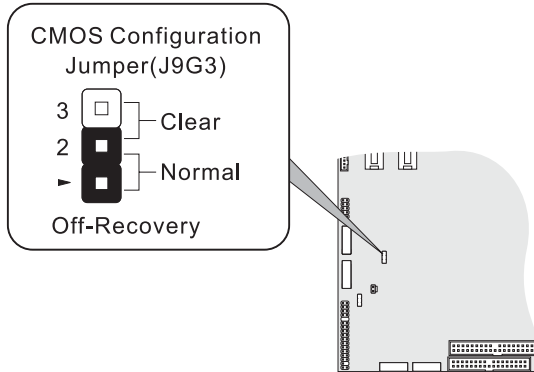


The table below lists each jumper option.

Pin no.	Pin function	Description
1-2	Normal boot (default)	Allows normal system operation. If the jumper block is removed, the system will attempt to recover the BIOS by loading the BIOS code into the flash device from a disk. This is typically used when the BIOS becomes corrupted.
2-3	Config (Maintenance)	Maintenance mode overrides incorrect BIOS settings

## Clear CMOS jumper

The 2-pin jumper blocks in the J9G3 jumper are used to perform clearing of NVRAM and system BIOS recovery options.



The table below lists each jumper option.

Pin no.	Pin function	Description
1-2	Normal boot (default)	Allows normal system operation.
2-3	Clear CMOS (NVRAM)	Clear of NVRAM following POST. CMOS settings will be cleared in on the next reset.



## 2 System setup

This chapter gives you instructions on how to set up the system. Procedures on how to connect peripherals are also explained.

# Setting up the system

## Pre-installation requirements

### Selecting a site

Before unpacking and installing the system, select a suitable site for the system for maximum efficiency. Consider the following factors when choosing a site for the system:

- Near a grounded power outlet
- Clean and dust-free
- Stable surface free from vibration
- Well-ventilated and away from sources of heat
- Secluded from electromagnetic fields produced by electrical devices such as air conditioners, radio and TV transmitters, etc.

### Checking the package contents

Check the following items from the package:

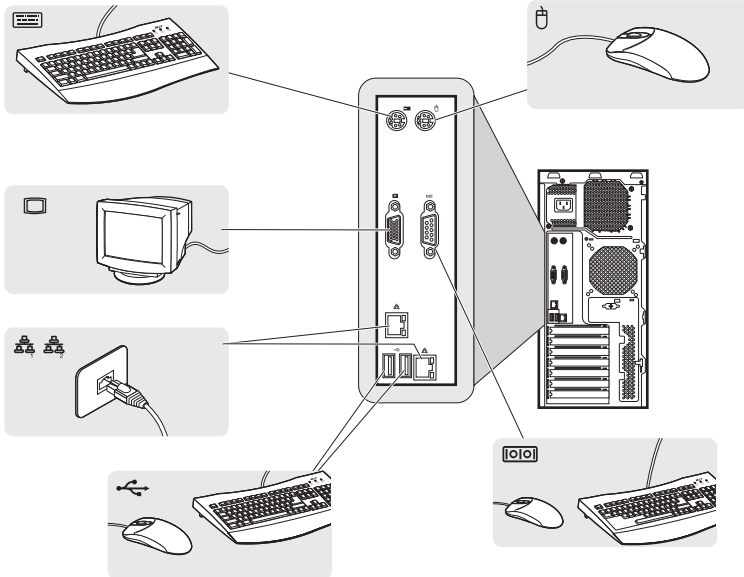
- Acer Altos G320 system
- Acer Altos G320 accessory box
- System keys

If any of the above items are damaged or missing, contact your dealer immediately.

Save the boxes and packing materials for future use.

## Connecting peripherals

Refer to the illustration below for specific connection instructions on the peripherals you want to connect to the system.

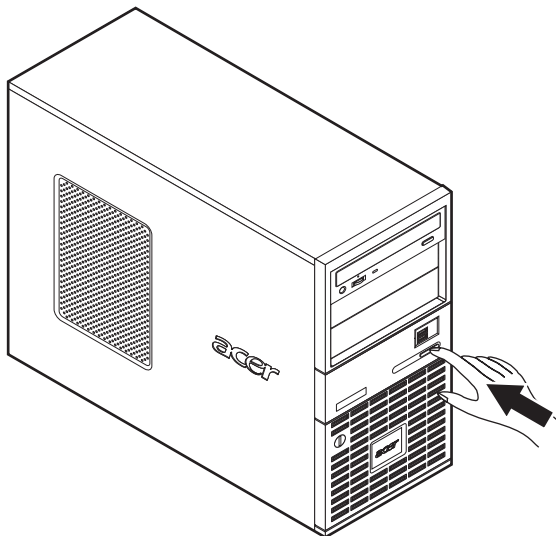


**Note:** Consult the operating system manual for information on how to configure the network setup.

## Turning on the system

After making sure that you have properly set up the system and connected all the required cables, you can now power on the system.

To power on the system, press the power button on the front panel.



The system starts up and displays a welcome message on the monitor. After that, a series of POST (power-on self-test) messages appears. The POST messages indicate if the system is running well or not.



**Note:** If the system does not turn on or boot after pressing the power button, go to the next section for the possible causes of the boot failure.

Aside from the POST messages, you can determine if the system is in good condition by checking if the following occurred:

- Power indicator on the front panel lights up (green)
- Num Lock, Caps Lock, and Scroll Lock indicators on the keyboard light up

## Power-on problems

If the system does not boot after you have applied power, check the following factors that might have caused the boot failure.

- The external power cable may be loosely connected.

Check the power cable connection from the power source to the power cable socket on the rear panel. Make sure that the cable is properly connected to the power source and to the power cable socket.

- No power comes from the grounded power outlet.  
Have an electrician check your power outlet.

- Loose or improperly connected internal power cables.

Check the internal cable connections. If you are not confident to perform this step, ask a qualified technician to assist you.



.....  
**Warning! Make sure all power cords are disconnected from the electrical outlet before performing this task.**



.....  
**Note:** If you have gone through the preceding actions and the system still fails to boot, ask your dealer or a qualified technician for assistance.

## Turning off the system

There are two ways by which you can turn off the server. These include:

To turn off the server, on the Windows taskbar click on the **Start** button, point to **Shut Down...**, select **Shut down** from the drop-down window, then click on **OK**. You can then turn off all peripherals connected to your server.

If you cannot shut down the server, press and hold the power button for at least four seconds to force quit all applications and shut down. Quickly pressing the button may put the server in a Suspend mode only.





# 3 System upgrade

This chapter discusses the precautionary measures and installation procedures you need to know when upgrading the system.

# Installation precautions

Before you install any server component, we recommend that you read the following sections. These sections contain important ESD precautions along with pre-installation and post-installation instructions.

## ESD precautions

Electrostatic discharge (ESD) can damage the processor, disk drives, expansion boards, mainboard, memory modules and other server components. Always observe the following precautions before you install a server component:

- 1 Do not remove a component from its protective packaging until you are ready to install it.
- 2 Wear a wrist grounding strap and attach it to a metal part of the server before handling components. If a wrist strap is not available, maintain contact with the server throughout any procedure requiring ESD protection.

## Pre-installation instructions

Perform the steps below before you open the server or before you remove or replace any component:

- 1 Turn off the system and all the peripherals connected to it.
- 2 Unplug all cables from the power outlets.
- 3 Place the system unit on a flat, stable surface.
- 4 Open the system according to the instructions on page 27.
- 5 Follow the ESD precautions described in this section when handling a server component.
- 6 Remove any expansion board(s) or peripheral(s) that block access to the DIMM slots or other component connector.

See the following sections for specific installation instructions on the component you want to install.



**Warning! Failure to properly turn off the server before you start installing components may cause serious damage. Do not attempt the procedures described in the following sections unless you are a qualified service technician.**

## Post-installation instructions

Perform the steps below after installing a server component:

- 1 See to it that all components are installed according to the described step-by-step instructions.
- 2 Reinstall any expansion board(s) or peripheral(s) that you have previously removed.
- 3 Reinstall the chassis panels.
- 4 Connect the necessary cables.
- 5 Turn on the system.

# Opening the server

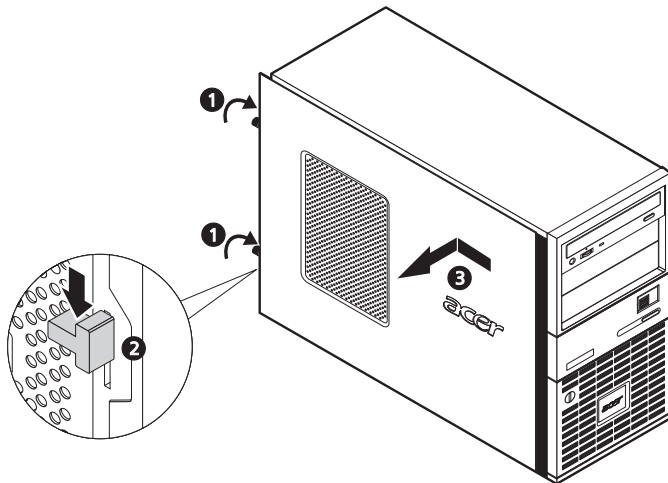


**Caution!** Before you proceed, make sure that you have turned off the system and all peripherals connected to it. Read the "Pre-installation instructions" on page 25.

You need to open the server before you can install additional components. The front bezel and left-side panel are removable to allow access to the system's internal components. Refer to the following sections for instructions.


## Removing the left-side panel

- 1 Observe the ESD precautions and pre-installation instructions described on page 25.
- 2 Remove the left-side panel.
  - (1) Loosen the two thumbscrews located on the rear edge of the left-side panel.
  - (2) Move the left-side panel release slider all the way down to unlock the panel.
  - (3) Slide the left-side panel toward the rear before detaching it from the chassis.



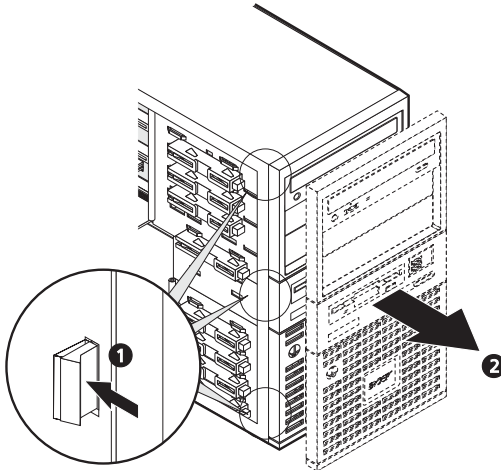
## Unlocking the front bezel

A security lock secures the bezel door to protect the system unit from unauthorized access.

Insert the key into the lock and turn it counterclockwise until it points to the unlock icon .

## Removing the front bezel

- 1 Remove the left-side panel. See page 27.
- 2 Slightly bend the plastic retention tabs to release the latches **(1)**.
- 3 Gently pull the bezel away from the front panel, then detach it from the chassis **(2)**.

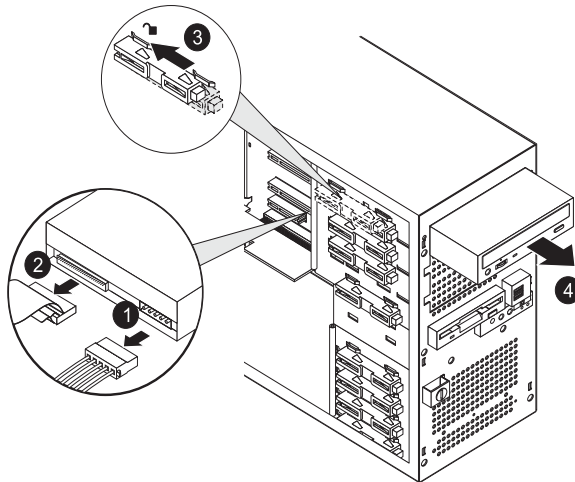


## Installing and removing storage devices

The system supports 3.5-inch and 5.25-inch internal storage devices. The system comes pre-installed with a floppy drive and a DVD or a combo drive. The empty 5.25-inch half-height bays allow you to install additional drives such as another DVD drive or a tape drive.

To remove a 5.25-inch storage device:

- 1 Observe the ESD precautions and pre-installation procedures described on page 25.
- 2 Disconnect the IDE power **(1)** and data **(2)** cables from the old drive.
- 3 Push the lever in the direction of the unlock icon **(3)**, then pull the drive out of the chassis **(4)**.



- 4 Observe the post-installation instructions described on page 26.

To install a 5.25-inch storage device:





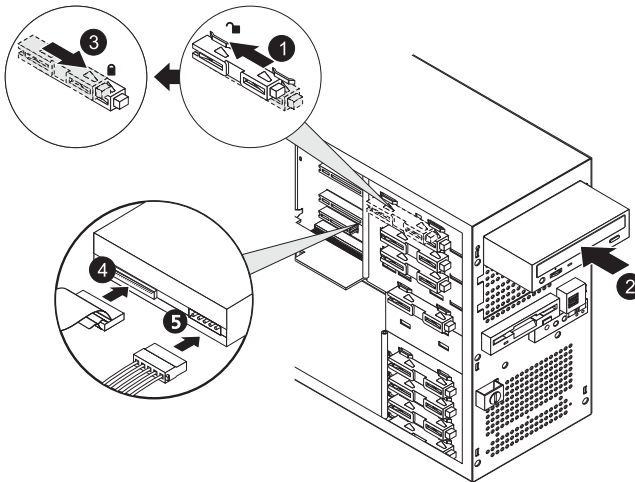
**Note:** If you are installing a storage device on an empty 5.25-inch drive bay, you must remove the blank plastic cover on the front bezel first.

- 1 Observe the ESD precautions and pre-installation procedures described on page 25.
- 2 If you are installing a device on an empty 5.25-inch drive bay, you must remove the bay cover first. If not, then go to step 3.

To remove the bay cover:

Remove the two screws that secure the cover to the empty bay, then detach the cover.

- 3 Push the lever in the direction of the unlock icon  (1).
- 4 Install a new 5.25-inch drive into the bay (2), then push the lever in the direction of the lock icon  (3).
- 5 Connect the IDE data (4) and power (5) cables to the new drive.



- 6 Observe the post-installation instructions described on page 26.




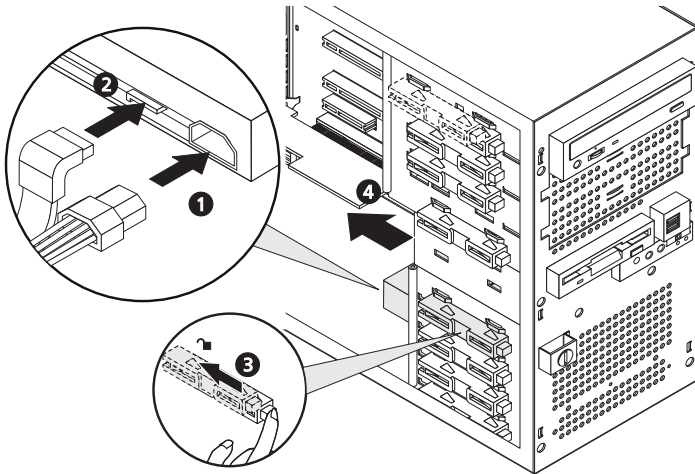
## Installing and removing a hard disk

This section include instructions for installing and removing a hard disk.

The three empty HDD bays allow you to install additional HDDs such as another SATA or SCSI HDD.



To remove a hard disk:

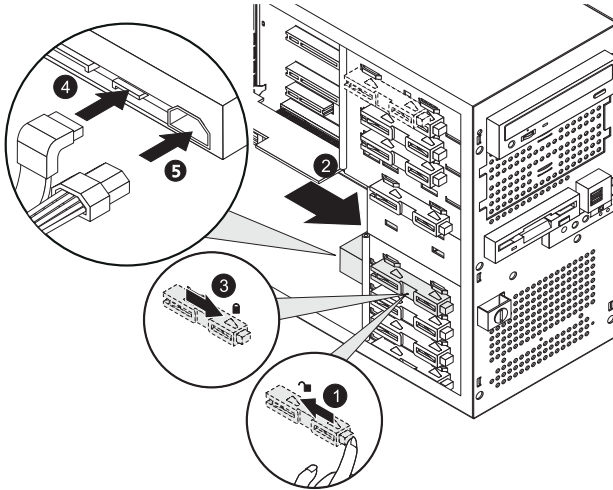
- 1 Observe the ESD precautions and pre-installation procedures described on page 25.
- 2 Disconnect the power **(1)** and data **(2)** cables from the old drive.
- 3 Push the lever in the direction of the unlock icon  **(3)**, then pull the drive out of the chassis **(4)**.



- 4 Observe the post-installation instructions described on page 26

To install a hard disk:

- 1 Observe the ESD precautions and pre-installation procedures described on page 25.
- 2 Push the lever in the direction of the unlock icon  (1),
- 3 Insert the drive into an empty HDD bay (2).
- 4 Make sure that the drive is properly inserted before closing the lever, then push the lever in the direction of the lock icon  (3).
- 5 Connect the data (4) and power (5) cables to the new drive.



- 6 Observe the post-installation instructions described on page 26.

# Upgrading the processor

This section include instructions for installing and removing a processor and the heat sink-fan duct (HSFD) assembly.

## Removing the HSFD assembly



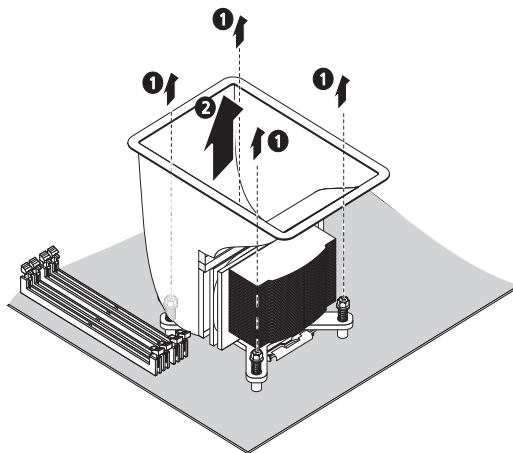
**Important:** Before removing a CPU from the mainboard, make sure to create a backup file of all important data.

- 1 Observe the ESD precautions and pre-installation instructions described on page 25.



**Warning!** The heat sink becomes very hot when the system is on. **NEVER touch the heat sink with any metal or with your hands.**

- 2 Disconnect the CPU fan cable from its mainboard connector. Refer to "Mainboard layout" on page 11 for the location of the CPU fan connector.
- 3 Loosen the four screws that hold the HSFD assembly to the mainboard **(1)**.
- 4 Pull the HSFD assembly away from the CPU **(2)**.



- 5 Place the HSFD assembly upside down on a flat surface.

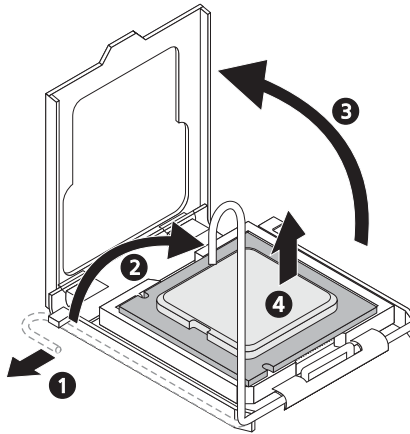


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**Note:** Wipe off the thermal grease from both the HSFD assembly and CPU using an alcohol pad.

## Removing the CPU

- 1 Push the socket retainer lever handle down and away from the socket to release it **(1)**.
- 2 Pull the lever to a fully open, upright position **(2)**.
- 3 Lift the load plate **(3)**.
- 4 Pull out the CPU from the socket **(4)**.



## Installing the CPU

The mainboard has a 775-pin processor socket that support Intel Pentium D, Pentium 4, or Celeron D processors.

- 1 Observe the ESD precautions and pre-installation instructions described on page 25.
- 2 Locate the CPU socket on the mainboard.
- 3 Push the socket retainer lever handle down and away from the socket, then pull the lever to a fully open, upright position.
- 4 Lift the load plate.



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**Note:** Do not touch the socket contacts.

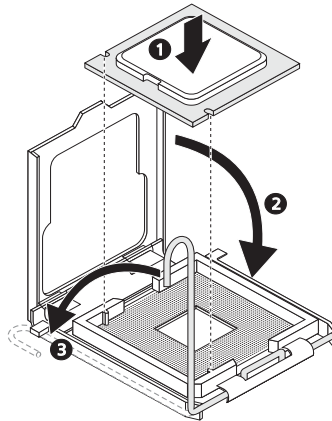
- 5 If a protective cover is installed on the load plate, remove first before installing the processor. If not, then proceed to step 6.



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**Note:** Do not discard the protective processor cover. Always replace the processor cover if the processor is removed from the socket.

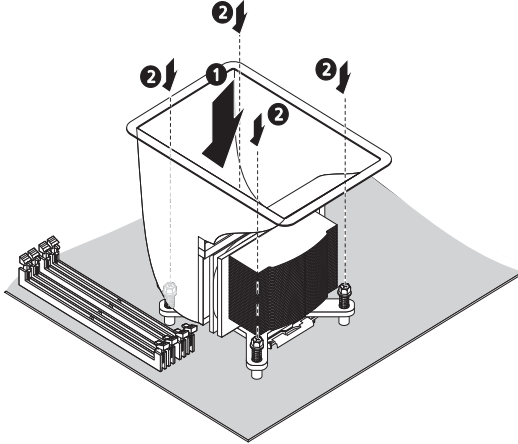
- 6 Remove the CPU from its protective packaging.
- 7 Align the CPU with the socket, making sure that the CPU's notched sides fit into the socket's pegs, then insert the CPU into the socket **(1)**.
- 8 Close the load plate **(2)**, then press the retainer lever down to lock the load plate in place **(3)**.



## Installing the HSF assembly

- 1 Apply thermal grease to the HSF assembly.  
Apply approximately 0.1 ml of the thermal grease compound on its top side.
- 2 Install the HSF assembly

- (1) Align the HSF/D assembly with the CPU **(1)**.
- (2) Tighten the assembly's four screws to secure it to the mainboard **(2)**.



- (3) Connect the CPU fan cable to its mainboard connector. Refer to "Mainboard layout" on page 11 for the location of the CPU fan connector.
- 3 Observe the post-installation instructions described on page 26.

# Upgrading the system memory

This section includes instructions for removing and installing a memory module.

Altos G320 has four DDR2-533/667 DIMM slots. Each slot supports 512 MB, 1 GB or 2 GB memory modules. The maximum memory capacity is 8 GB.

## Memory module installation guidelines

- The minimum memory configuration is one DIMM, installed in the DIMM 1A socket (the socket closest to the CPU sockets). However, for optimum performance and dual-channel interleave operation, a minimum of two identical DIMMs should be installed. DIMMs must be identical (same manufacturer, CAS latency, number of rows, columns and devices, timing parameters, etc.).
- DIMMs on channel A (DIMM 1A and 2A) are paired with DIMMs on channel B (DIMM 1B and 2B) to enable 2-way interleaving. When only two DIMMs are being used, the population order must be DIMM 1A and DIMM 1B to ensure dual-channel operating mode. Refer to the suggested DDR population table below.

DIMM label	Channel	Bank	Population order
DIMM 1A	A	1	1
DIMM 2A	A	1	3
DIMM 1B	B	2	2
DIMM 2B	B	2	4



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**Note:** Refer to “Mainboard layout” on page 11 for the location of the DIMM sockets for each processor.



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**Warning!** For best performance and dual-channel interleave operation, DIMM modules must be installed or removed in matched pairs, following the socket sequence: DIMM 1A and 1B first, then DIMM 2A and 2B. DIMM modules of the same type, banking, stacking technology, and manufacturer must be installed in the Altos G320 system.

- Altos G320 mainboard does not support installation of three DIMMs only.

The table below lists the supported memory installation based on the memory interleave configuration:

Bank 1		Bank 2		Memory Interleave
DIMM 1A	DIMM 2A	DIMM 1B	DIMM 2B	
512 MB				1-way
1 GB				1-way
2 GB				1-way
512 MB		512 MB		2-way
1 GB		1 GB		2-way
2 GB		2 GB		2-way
512 MB	512 MB	512 MB	512 MB	2-way
1 GB	1 GB	1 GB	1 GB	2-way
2 GB	2 GB	2 GB	2 GB	2-way



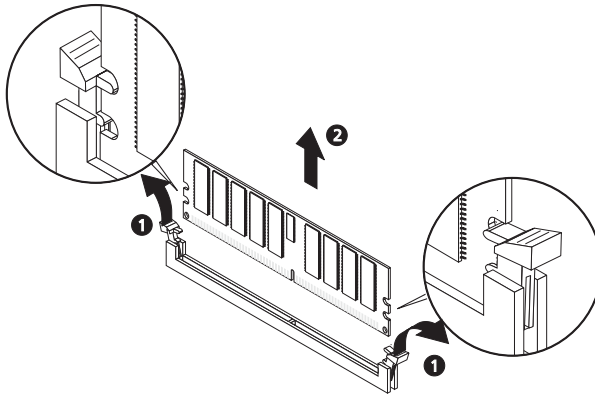
## Removing a DIMM

Before you can install a new DIMM in a socket, remove first any previously installed DIMM from that socket.



**Important:** Before removing any DIMM from the mainboard, make sure to create a backup file of all important data.

- 1 Observe the ESD precautions and pre-installation instructions described on page 25.
- 2 Locate the DIMM sockets on the mainboard.
- 3 Press the holding clips on both sides of the socket outward to release the DIMM **(1)**.
- 4 Gently pull the DIMM upward to remove it from the socket **(2)**.



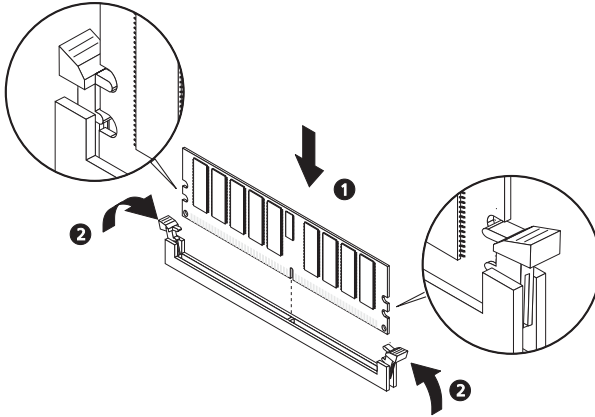
## Installing a DIMM

- 1 Observe the ESD precautions and pre-installation instructions described on page 25.
- 2 Locate the DIMM sockets on the mainboard.



**Note:** For dual-channel interleave operation, a minimum of two DIMM modules must be installed and following the socket sequence: DIMM 1A and 1B first, then DIMM 2A and 2B.

- 3 Open the clips on the socket.
- 4 Align then insert the DIMM into the socket **(1)**.
- 5 Press the holding clips inward to lock the DIMM in place **(2)**.



**Note:** The DIMM socket is slotted to ensure proper installation. If you insert a DIMM but it does not fit easily into the socket, you may have inserted it incorrectly. Reverse the orientation of the DIMM and insert it again.

- 6 Observe the post-installation instructions described on page 26.

To reconfigure the system memory:

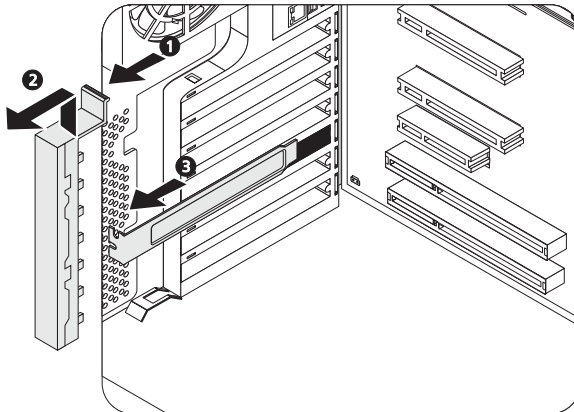
The system automatically detects the amount of memory installed. Run the BIOS setup to view the new value for total system memory and make a note of it.

# Installing an expansion card

This section explains how to install an expansion card. The onboard expansion slots supports PCI (Peripheral Component Interconnect) and PCI Express cards. PCI Express slot is a new type of interface and differs in length than the conventional PCI/PCI-X slots. You should always install the correct type of plug-in expansion cards in the x4 and x8 PCI Express slot. Contact your dealer for qualified PCI Express card vendors.

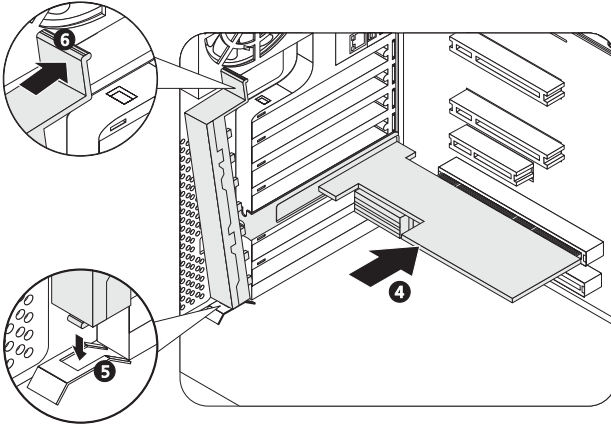
To install an expansion card:

- 1 Observe the ESD precautions and pre-installation instructions described on page 25.
- 2 Locate an empty expansion slot on the mainboard.
- 3 Pull the tool-less card bracket lock release latch slightly upward **(1)**, then pull it away from the chassis **(2)**.
- 4 Pull out the slot cover **(3)**. Store it for reassembly later.



- 5 Remove the expansion card from its protective packaging.
- 6 Align the card in the empty slot.
- 7 Insert the card into the selected slot **(4)**. Make sure that the card is properly seated.
- 8 Align then insert the bracket lock to the slot **(5)**.

- 9 Secure the card with the bracket lock **(6)**.



- 10 Observe the post-installation instructions described on page 26.



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**Note:** When you turn on the system, the BIOS setup automatically detects and assigns resources to the new device (applicable only to plug-and-play expansion cards).

# 4 BIOS setup

This chapter gives information about the system BIOS and discusses how to configure the system by changing the settings of the BIOS parameters.

# BIOS setup

BIOS setup is a hardware configuration program built into the system's Basic Input/Output System (BIOS). Since most systems are already properly configured and optimized, there is no need to run this utility. You will need to run this utility under the following conditions:

- When changing the system configuration
- When a configuration error is detected by the system and you are prompted ("Run Setup" message) to make changes to the BIOS setup



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**Note:** If you repeatedly receive Run Setup messages, the battery may be bad. In this case, the system cannot retain configuration values in CMOS. Ask a qualified technician for assistance.

- When redefining the communication ports to prevent any conflicts
- When making changes to the Power Management configuration
- When changing the password or making other changes to the security setup

BIOS setup loads the configuration values in a battery-backed nonvolatile memory called CMOS RAM. This memory area is not part of the system RAM which allows configuration data to be retained when power is turned off.

Before you run BIOS setup, make sure that you have saved all open files. The system reboots immediately after you close the setup.

# Entering BIOS setup

Power on the server to start the system POST process. During bootup, press **F2** to enter the BIOS setup screen.



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**Note:** You must press **F2** while the system is booting. This key does not work during any other time.

There are several tabs on the setup screen corresponding to the six major BIOS menus:

- Main
- Advanced
- Security
- Power
- Boot
- Exit

The parameters on the screens shown in this User's Guide display default system values. These values may not be the same as those in the system.

Note the following reminders when moving around the setup screen:

- Use the **Left** and **Right** arrow keys to move to the next page or to return to the previous screen.
- Use the **Up** and **Down** arrow keys to select an item.
- Use the **+** and **-** keys to select an option.



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**Note:** You can configure a parameter that is enclosed in square brackets. Grayed-out items have fixed settings and are not user-configurable.

- Use the **Tab** key to select a field.
- Use the **Enter** key to display a submenu screen.



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**Note:** When a parameter is preceded by a **>**, it means that a submenu screen is available.



- Press **F1** for General Help on using the BIOS setup.
- Press **F10** to save changes and close the BIOS setup.
- Press **Esc** to close the BIOS setup.

In the descriptive table following each of the screen illustrations, settings in **boldface** are the default and suggested parameter settings.

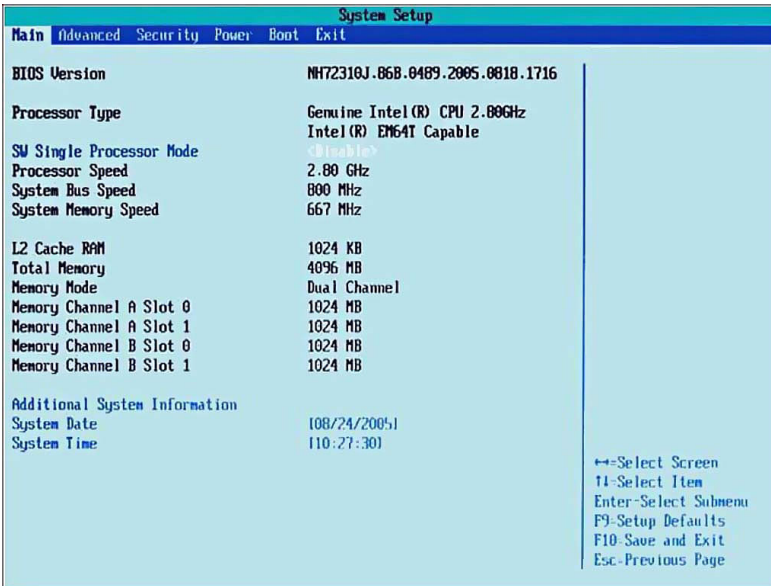


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**Note:** The BIOS screens shown in the following pages may vary depending on the system configuration.

# Main

The Main menu displays basic and important information about the system. These information are necessary for troubleshooting and may be required when asking for technical support.

The last two parameters on the screen lets you define the sytem's date and time settings. The real-time clock keeps the system date and time. After setting the date and time, you do not need to enter them every time you turn on the system. As long as the internal battery remains good and connected, the clock continues to keep the date and time accurately even when the power is off.



Parameter	Description	Option
BIOS Version	Version of the BIOS setup utility.	
Processor Type	Type of processor currently installed in the server.	

Parameter	Description	Option
SW Single Processor Mode	Enables or disables the dual-core processor support. It is recommended that you disable this feature for maximum performance.	<b>Disable</b> Enable
Processor Speed	The processor speed is the speed at which a microprocessor executes instructions. Clock speeds are expressed in megahertz (MHz), with 1 MHz being equal to 1 million cycles per second. The faster the clock, the more instructions the CPU can execute per second.	
System Bus Speed	Indicates the system bus speed.	
System Memory Speed	Indicates the system memory speed.	
L2 cache RAM	Total amount of second-level cache memory that comes with the CPU.	
Total Memory	Indicates the total amount of onboard memory.	
Memory Mode	Indicates the memory mode.	
Memory Channel A/B slot 0 or 1	Indicates the total amount of memory available on DIMM 1A, 1B, 2A or 2B slots.	
Additional System Information	Displays basic information about the system.	
System Date	Sets the date following the weekday-month-day-year format. Valid values for weekday, month, day, and year are: Weekday: Sun, Mon, Tue, Wed, Thu, Fri, Sat Month: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec Day: 1 to 31 Year: 1980 to 2079	

<b>Parameter</b>	<b>Description</b>	<b>Option</b>
System Time	Sets the time following the hour-minute-second format. Valid values for hour, minute, and second are: Hour: 00 to 23 Minute: 00 to 59 Second: 00 to 59	

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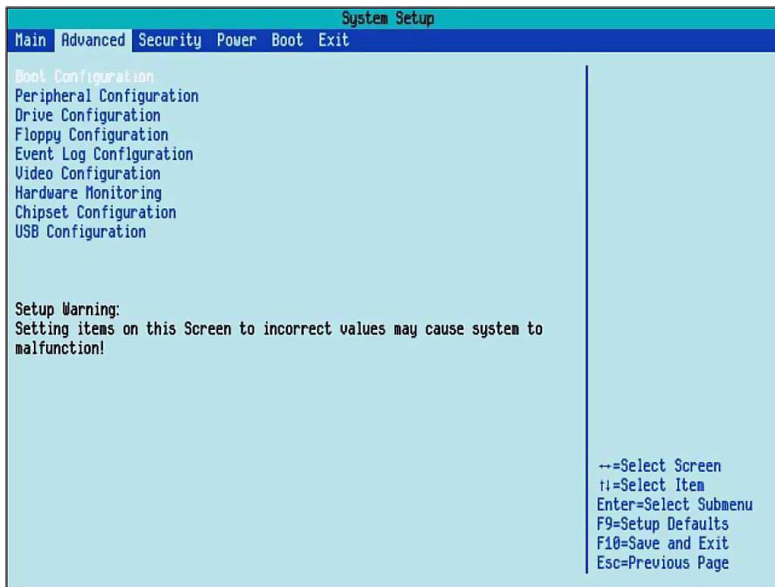
# Advanced

The Advanced menu contains parameter values that define how the system behaves on startup.



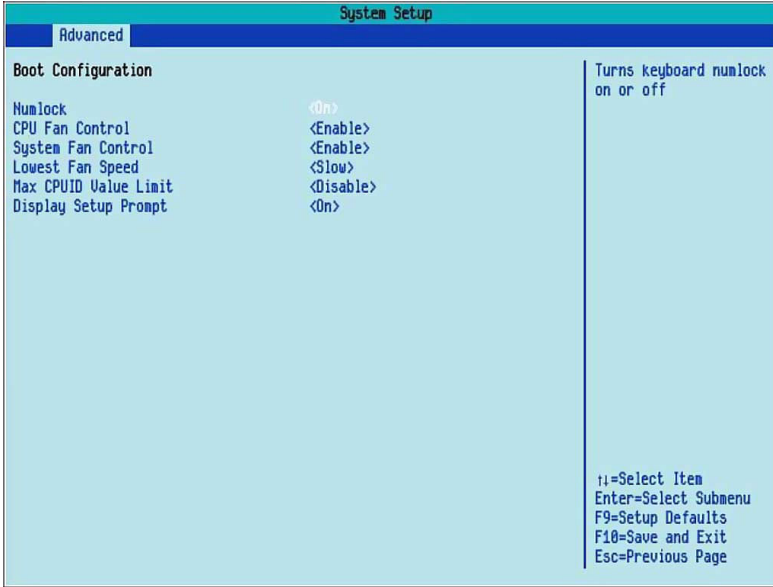
**Warning! Be cautious in setting parameter values in the Advanced menu as any incorrect value may cause the system to malfunction.**

Press **Enter** to enter the submenu screen of the parameters shown in the screen below.



## Boot Configuration

The Boot Configuration submenu lets you specify the preferred settings for system bootup.

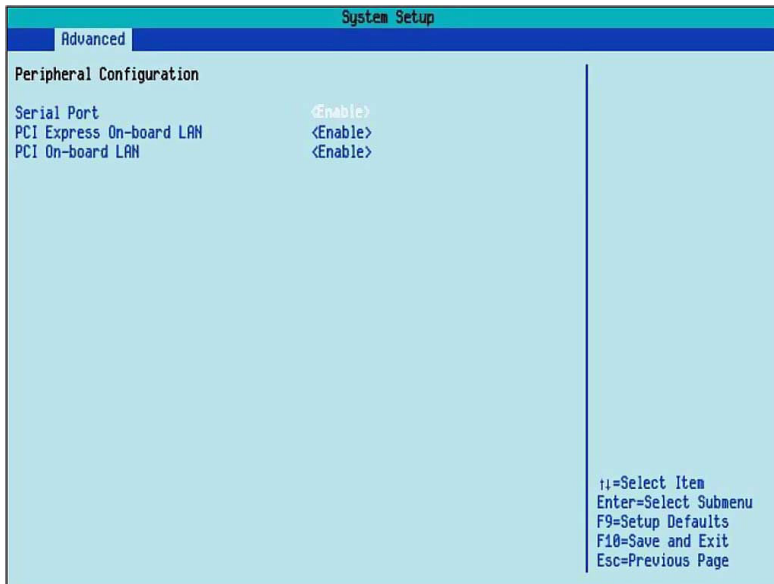


Parameter	Description	Option
Num-Lock	Activates the Numeric Lock function upon booting.	<b>On</b> Off
CPU Fan Control	Enables or disables the CPU fan control function.	<b>Enable</b> Disable
System Fan Control	Enables or disables the system fan control function.	<b>Enable</b> Disable
Lowest Fan Speed	When set to Slow, the fan will continue to run at a slow speed when system temperature is low. When set to Off, the fan will turn off when system temperature is low.	<b>Slow</b> Off

Parameter	Description	Option
Max CPUID Value Limit	This should be enabled in order to boot legacy operating systems that cannot support CPUs with extended CPUID functions.	<b>Disable</b> Enable
Display Setup Prompt	When this parameter is enabled, you will be prompted to press F2 to run BIOS during boot up.	<b>On</b> Off

## Peripheral Configuration

The Peripheral Configuration submenu lets you define the parameter settings for the system's serial and LAN ports.

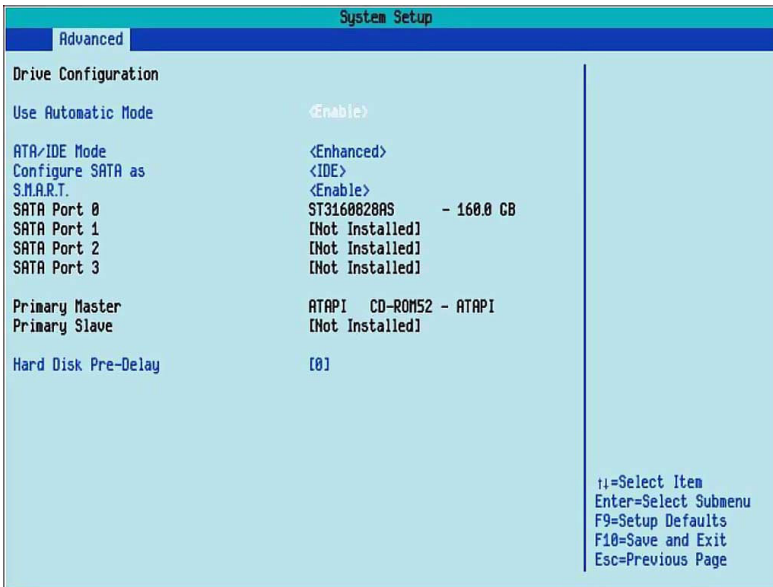


Parameter	Description	Option
Serial Port	Enables or disables the onboard serial port.	<b>Enable</b> Disable

Parameter	Description	Option
PCI Express On-board LAN	Enables or disables the PCI Express Gigabit Ethernet controller.	<b>Enable</b> Disable
PCI On-board LAN	Enables or disables the onboard LAN device.	<b>Enable</b> Disable

## Drive Configuration

The Drive Configuration submenu lets you define the parameter settings related to the hard disk/s.



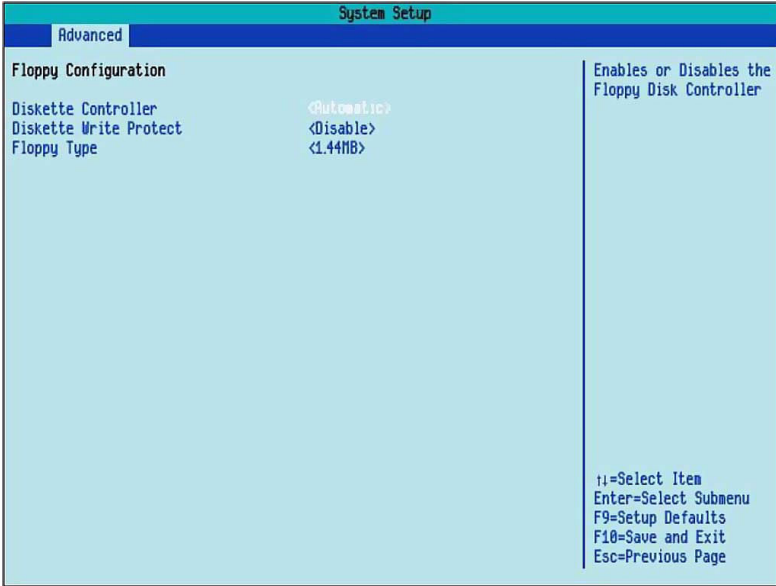
Parameter	Description	Option
Use Automatic Mode	N/A	<b>Enable</b> Disable



Parameter	Description	Option
ATA/IDE Mode	When set to Enhanced, it will enable all SATA and PATA controllers. When set to Legacy, it will enable up to 2 IDE channels for OS that requires legacy IDE operation.	<b>Enhanced</b> Legacy
Configure S-ATA as	Set SATA to IDE or RAID. This parameter is disabled when the ATA/IDE Mode is not set to Enhanced mode.	<b>IDE</b> RAID AHCI
S.M.A.R.T.	Enables or disables the S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) function.	<b>Enable</b> Disable
SATA Port 0, 1, 2 and 3	Displays the SATA HDD connected to the SATA port.	
Primary Master	Specifies the current configuration of the IDE device connected to the master port of the primary IDE channel.	
Primary Slave	Specifies the current configuration of the the IDE device connected to the slave port of the primary IDE channel.	
Hard Disk Pre-Delay (Sec)	Select the time out value for detecting ATA/ATAPI devices. Used with older IDE devices with longer spin up times.	0 5 15 20 25 30

## Floppy Configuration

The Floppy Configuration submenu displays the type of floppy drive installed in the server.

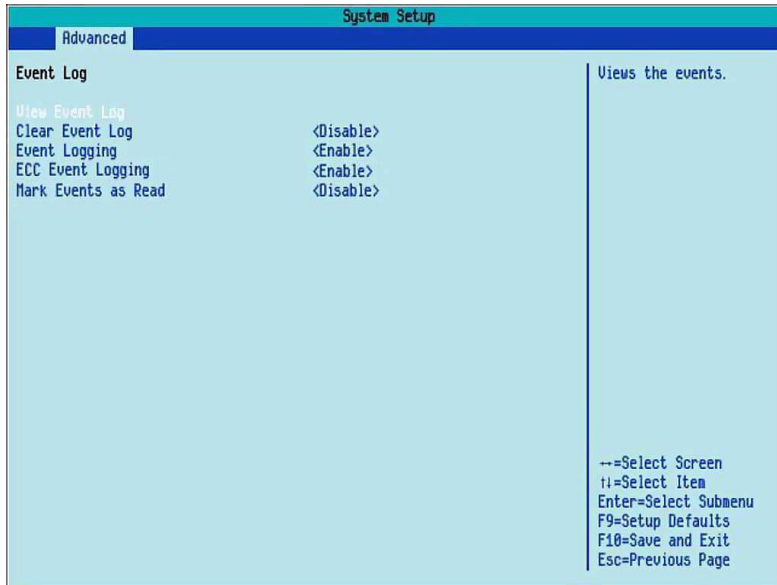


Parameter	Description	Option
Diskette Controller	Enables or disables the floppy controller.	<b>Automatic</b> Enable Disable
Diskette Write Protect	Enables or disables the floppy disk drive (FDD) write protection.	<b>Disable</b> Enable
Floppy Type	FDD type	<b>1.44 MB</b> 2.88 MB

## Event Log Configuration

The Event Log Configuration submenu lets you specify the appropriate settings for system's event handling function.

The system event log enables you to record and monitor events that occur in the system (e.g., system temperature changes, fan stops, etc.)

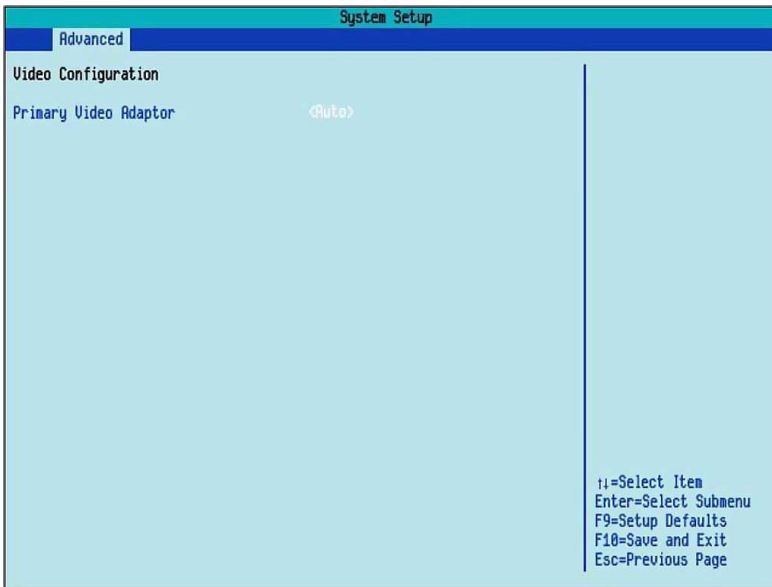


Parameter	Description	Option
View Event Log	Opens the system Event log file for viewing. This submenu displays the time and type of event and system event log file.	
Clear Event Logs	Deletes all events in the Event log.	<b>Disable</b> Enable
Event Logging	Enables or disables the event logging function of the system.	<b>Enable</b> Disable

Parameter	Description	Option
ECC Event Logging	Enables or disables the ECC (Error Correcting Code) event logging function of the system.	<b>Enable</b> Disable
Mark Event as Read	Press <b>Enter</b> to mark all events in the Event log as read.	

## Video Configuration

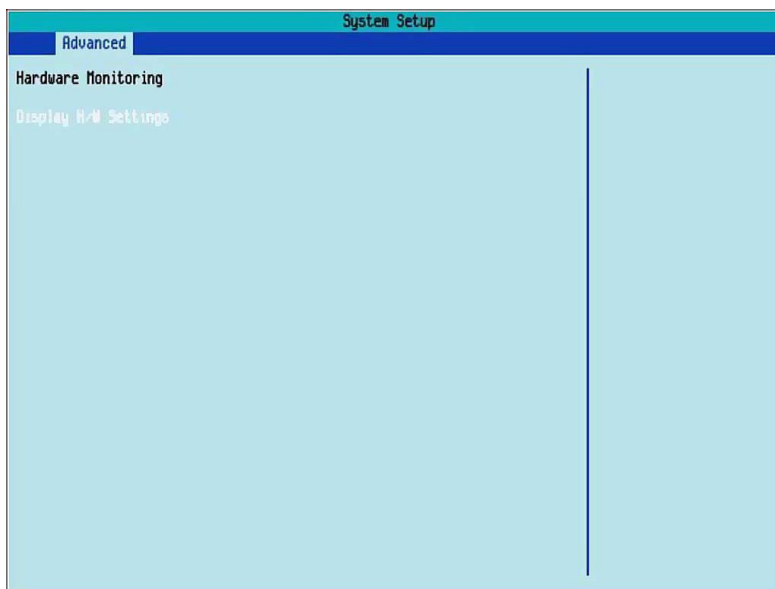
The Video Configuration submenu lets you define the parameter settings related to the video adapter.



Parameter	Description	Option
Primary Video Adaptor	Select a parameter for the active video adapter when the system boots.	<b>Auto</b> Ext PCIe Graphics (PEG) Ext PCI Graphics

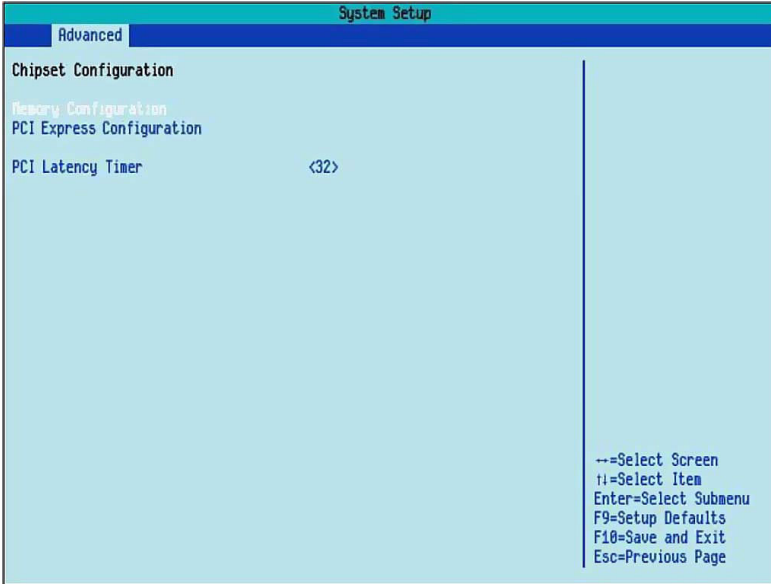
## Hardware Monitoring

The Hardware Monitoring submenu displays the current speed status of the system fans, temperature level of a specified component and voltage levels and status of the monitored voltage.



## Chipset Configuration

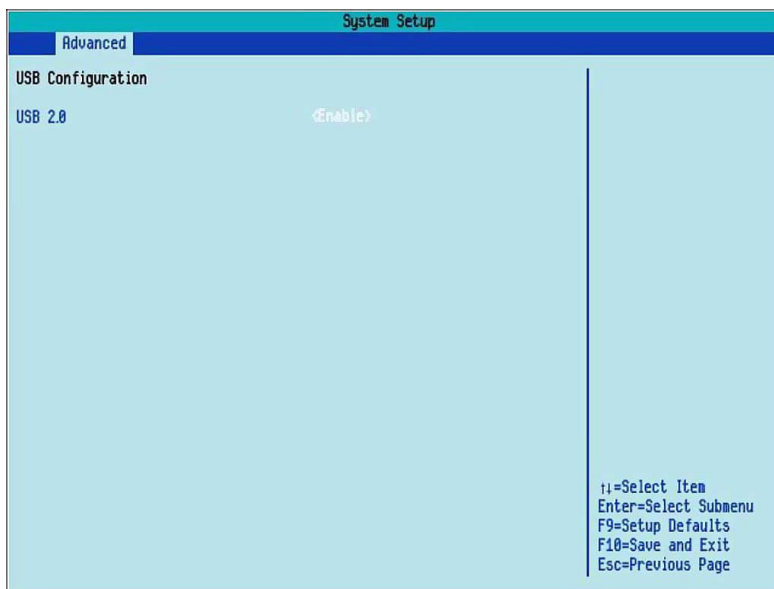
The Chipset Configuration submenu lets you set the memory interleave and node interleave settings, specify settings that are related to the onboard controllers.



Parameter	Description	Option
Memory Configuration	Offers memory correction and memory timing adjustments. It also provides information about the DIMMs installed in DIMM slots 1A, 1B, 2A, and 2B.	
PCI Express Configuration	Specify settings that are related to the onboard controllers.	
PCI Latency Timer	Set the latency timer for the PCI bus.	32, 64, 96, 128, 160, 192, 224, 248

## USB Configuration

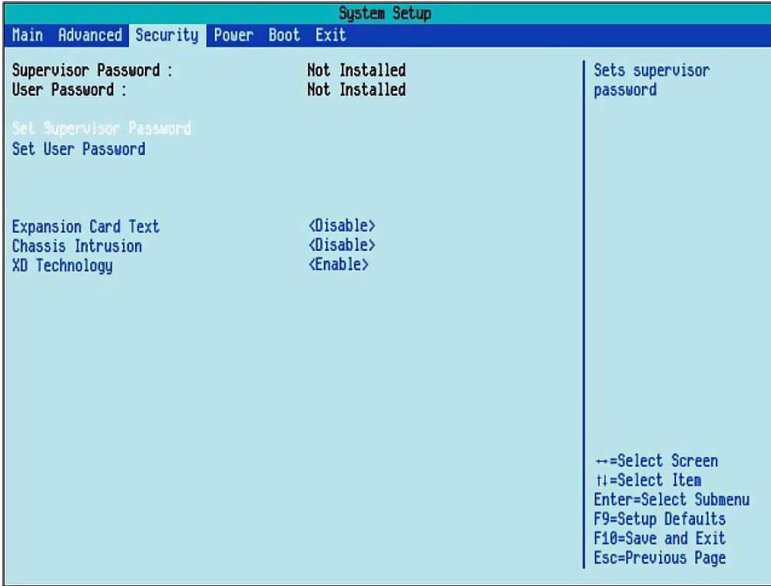
The USB Configuration submenu lets you specify settings for USB devices.



Parameter	Description	Option
USB 2.0	Enables the USB 2.0 controller. When set to Disable, other USB options will be grayed out.	<b>Enable</b> Disable

# Security

The Security menu allows you to safeguard and protect the system from unauthorized use by setting up access passwords.



Parameter	Description	Option
Supervisor Password	Prevents unauthorized access to the BIOS setup utility.	<b>Not Installed</b> Installed
User Password	Secures the system against unauthorized use. Once you set this password, you have to type it whenever you boot the system. User password is available only when a Supervisor password is set.	<b>Not Installed</b> Installed
Set Supervisor Password	Press <b>Enter</b> to change the Supervisor password.	
Set User Password	Press <b>Enter</b> to change the User password.	



Parameter	Description	Option
Expansion Card Text	N/A	<b>Disable</b> Enable
Chassis Intrusion	Enables or disables the system to detect and report chassis intrusion events	<b>Enable</b> Disable
XD Technology	Enables or disables the execute disable bit technology function.	<b>Enable</b> Disable

## Setting the Supervisor/User password:

- 1 Use the up/down keys to highlight a password parameter (Supervisor Password or User Password), then press **Enter**.  
A password box will appear.
- 2 Type a password then press **Enter**.  
The password may consist of up to six alphanumeric characters (A-Z, a-z, 0-9).
- 3 Retype the password to verify the first entry, then press **Enter** again.  
After setting the password, the system automatically sets the chosen password parameter to Installed.

## Removing the User password

- 1 Use the up/down keys to highlight the Clear User Password parameter, then press **Enter**.
- 2 Enter the current password, then press **Enter**.
- 3 Press **Enter** twice without entering anything in the new and confirm password fields.  
After doing this, the system automatically sets the User password parameter to Not Installed.

# Power

The Power menu allows you to configure the system's power management feature.



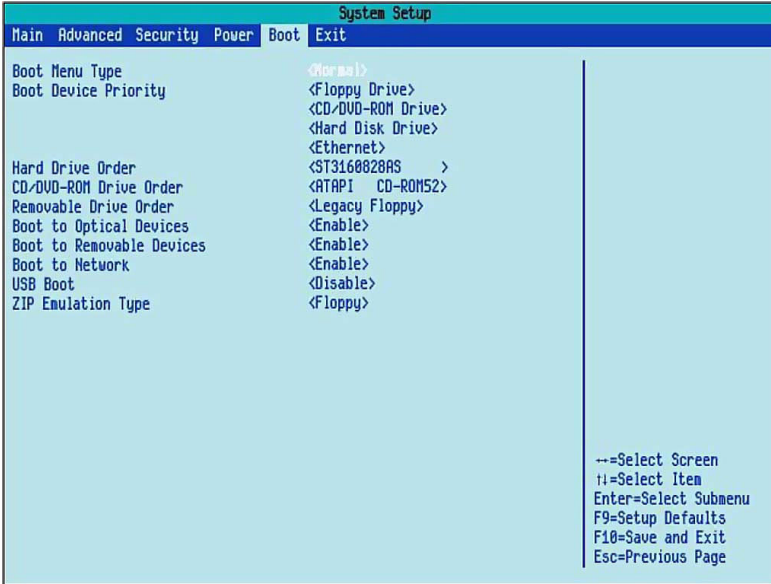
Parameter	Description	Option
After Power Failure	<p>Defines the power state to resume to after a system shutdown that is due to an interruption in AC power.</p> <p>When set to Stay off, the system remains off after power shutdown.</p> <p>When set to Last state, the system will return to active power state prior to shutdown.</p> <p>When set to Power on, the system will be turned on from a power failure.</p>	<p><b>Stay off</b></p> <p>Last state</p> <p>Power on</p>

Parameter	Description	Option
Wake on LAN from S5	When set to Power on, the system will resume from an S5 state if a PME (Power Management Event) is asserted. When set to Stay off, the system will not resume from an S5 state if a PME is asserted.	<b>Stay off</b> Power on

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# Boot

The Boot menu allows you to set the drive priority during system bootup. It also displays information about the installed storage devices.

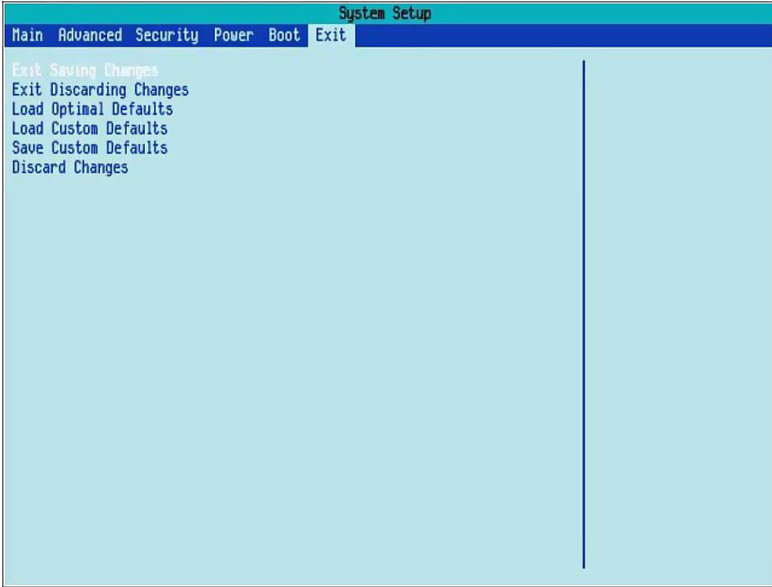


Parameter	Description	Option
Boot Menu Type	N/A	<b>Normal</b> Advance
Boot Device Priority	Specify the boot search sequence during the POST process.	<b>Varies</b>
Hard Drive Order	Specify the devices that will be considered as the primary and secondary hard drives.	
CD-ROM Drive Order	Displays the type of ATAPI CD-ROM installed in the system.	
Removable Drive Order	Displays the type of removable devices installed in the system.	

<b>Parameter</b>	<b>Description</b>	<b>Option</b>
Boot to Optical Devices	Enables or disables the system to boot from an optical device.	<b>Enable</b> Disable
Boot to Removable Devices	Enables or disables the system to boot from a removable device installed in the system.	<b>Enable</b> Disable
Boot to Network	Enables or disables the system to invoke the boot ROM of the onboard network chip.	<b>Enable</b> Disable
USB Boot	Enables or disables the system to boot from a USB device.	<b>Enable</b> Disable
ZIP Emulation Type	Sets the emulation type for USB mass storage devices.	<b>Floppy</b> Hard Disk

# Exit

The Exit menu displays the various options to quit from the BIOS setup utility. Highlight any of the exit options then press **Enter**.



Parameter	Description
Exit Saving Changes	Saves changes made and close the BIOS setup utility. The <b>F10</b> key can also be used for this operation.
Exit Discarding Changes	Exits system setup without saving any changes. The <b>Esc</b> key can also be used for this operation.
Load Optimal Defaults	Loads the default settings for all BIOS setup parameters. Setup Defaults are quite demanding in terms of resources consumption. If you are using low-speed memory modules or other kinds of low-performance components and you choose to load these settings, the system might not function properly. The <b>F9</b> key can also be used for this operation.
Load Custom Defaults	Loads the custom settings for all BIOS setup parameters.

Parameter	Description
Save Custom Defaults	Saves the custom settings for all BIOS setup parameters.
Discard Changes	Discards changes made in the BIOS setup. The <b>F7</b> key can also be used for this operation.





# 5 Troubleshooting

This chapter provides possible solutions for specific problems. If you cannot correct the problem, contact your local Acer representative or authorized dealer for assistance.

# Troubleshooting

This chapter helps you identify and solve problems that might occur while you are using the system.

For any issue, first ensure that you are using the latest firmware and files. In addition to the server firmware and files, make sure to update any drivers used for components you have installed in your system, such as video drivers, network drivers and SCSI drivers.

If you are unable to resolve your server problems on your own, contact your dealer or local Acer representative for assistance.

## Resetting the system

Before going through in-depth troubleshooting, attempt first to perform reset the system using one of the methods below.

To do this	Press
Soft boot reset to clear the system memory and reload the operating system.	Ctrl+Alt+Del
Cold boot reset. Turn the system power off and then on. This clears system memory, restarts POST, reloads the operating system and halts power to all peripherals.	Power off/on

## Problems following initial system installation

Problems that occur at initial system startup are usually caused by an incorrect installation or configuration. Hardware failure is a less frequent cause. If the problem you are experiencing is with a specific software application, see "There is problem with the application software" on page 81.

## First steps checklist

- AC power available at the wall outlet?
- Are the power supplies plugged in? Check the AC cable(s) on the back of the chassis and at the AC source.
- Are all cables correctly connected and secured?
- Is the processor fully seated in the socket on the mainboard?
- Are all standoffs in the proper location and not touching any components, causing a potential short?
- Are all expansion boards fully seated in their slots on the mainboard?
- Are all jumper settings on the mainboard correct?
- Are all jumper and switch settings on expansion boards and peripheral devices correct? If applicable, ensure that there are no conflicts - for example, two expansion boards sharing the same interrupt.
- Are all peripheral devices installed correctly?
- If the system has a hard disk drive, is it properly formatted or configured?
- Are all device drivers properly installed?
- Are the configuration settings made in BIOS setup correct?
- Is the operating system properly loaded? Refer to the operating system documentation.
- Did you press the system power button on the front panel to turn the server on (power indicator should be lit)?
- Is the system power cord properly connected to the system and plugged into a NEMA 5-15R outlet for 100-120 V or a NEMA 6-15R outlet for 200-240 V?
- Are all integrated components from the tested components lists? Check the tested memory, and chassis lists, as well as the supported hardware and operating system list.

## Hardware diagnostic testing

This section provides a more detailed approach to identifying a hardware problem and locating its source.



**Caution!** Before disconnecting any peripheral cables from the system, turn off the system and any external peripheral devices. Failure to do so can cause permanent damage to the system and/or the peripheral devices.

- 1 Turn off the system and all external peripheral devices. Disconnect each of device from the system, except for the keyboard and the video monitor.
- 2 Make sure the system power cord is plugged into a properly grounded AC outlet.
- 3 Make sure your video display monitor and keyboard are correctly connected to the system. Turn on the video monitor. Set its brightness and contrast controls to at least two thirds of their maximum ranges (see the documentation supplied with your video display monitor).
- 4 If the operating system normally loads from the hard disk drive, make sure there is no diskette in drive A and no disc in the optical drive.
- 5 If the power indicator does light, attempt to boot from a floppy diskette or from a disc.
- 6 Turn on the system. If the power indicator does not light, see "Power indicator does not light" on page 76.

## Verifying proper operation of key system lights

As POST determines the system configuration, it tests for the presence of each mass storage device installed in the system. As each device is checked, its activity light should turn on briefly. Check if the FDD activity indicator lights briefly? If not, see "FDD activity indicator does not light." on page 76.

## Confirming loading of the OS

Once the system boots up, the operating system prompt appears on the screen. The prompt varies according to the operating system. If the

operating system prompt does not appear, see "No Characters Appear on Screen" on page 82.

## Specific problems and corrective actions

The following contains specific problems that may arise during the use of your server. Possible solutions are listed for each problem.

Power indicator does not light.

Do the following:

- Make sure the power button on the front panel is turned on.
- Make sure the power cable is connected correctly.
- Make sure that the wall outlet has power. Test it by plugging another device.
- Remove all expansion cards and see if the system boots. If successful, add the cards back in one at a time with a reboot between each addition.
- Make sure the memory modules comply with the system requirements.
- Make sure the memory modules have been populated according to the system requirements.
- Remove the memory modules and reseal them.
- Make sure the CPU comply with the system requirements.
- Make sure the CPU is populated according to the system requirements.
- Remove and reseal the CPU.
- Make sure the chassis standoffs are installed only below mounting holes. Misplaced standoffs may have contact to the pins on the bottom of the mainboard and cause a short.

FDD activity indicator does not light.

Do the following:

- Make sure the FDD and signal cables are properly connected.
- Check that relevant switches and jumpers for the FDD are set correctly.

- Check that FDD is properly configured.
- If you are using the onboard diskette controller, use BIOS setup on page 45 to make sure that onboard “Floppy A” is set to **1.44 MB, 3.5-inch**.

HDD activity indicator does not light.

Do the following:

- Make sure the drive is not disabled in the BIOS setup utility.
- Make sure the drive’s power and data cables are connected correctly.
- Make sure the drive is compatible.
- Make sure you have not exceeded the power budget for the server.
- If using SATA drives, make sure that the master or slave settings are set correctly. See your drive documentation for details on setting the master or slave settings.
- If using SCSI drives, make sure that each SCSI ID number is unique on the SCSI bus. See your drive documentation for details on setting the SCSI ID for your drives.
- If using a RAID configuration with SATA or SCSI drives, make sure the RAID card is installed correctly.

HDD activity indicator does not light.

If you have installed one or more hard drives in the system, do the following:

- Make sure the power and signal cables are connected correctly.
- If using SATA or SCSI drives, check that relevant switches and jumpers on the hard drive and backplane board are set correctly.

ODD (Optical disk drive) activity indicator does not light.

Do the following:

- Make sure the power and signal cables are properly installed.

- Check that relevant switches and jumpers on the drive are set correctly.
- Check that drive is properly configured.
- Check that onboard IDE controller is enabled in the BIOS setup.

ODD tray cannot be ejected.

- Insert the tip of a paperclip into the small hole on the ODD drive. Slowly pull the tray out from the drive until the tray is fully extended then remove the disc.

ODD drive cannot read a disc.

Do the following:

- Make sure you are using the correct type of disc.
- Make sure the disc is properly seated in the drive.
- Make sure the disc is unscratched.
- Make sure all cables are connected to the ODD.

Hard drives are not recognized.

- Make sure the drive is not disabled in the BIOS setup.
- Make sure the drive is connected correctly and the power cable is plugged to the power supply.
- Make sure the drive is compatible.
- Make sure that you have not exceeded the power budget for the server.
- If using SCSI drives, verify that each SCSI ID numbers is unique on the SCSI bus. Refer to the drive documentation for details on setting the SCSI ID for your drives.
- If using IDE drives, verify that the master/slave settings are set correctly. Refer to the drive documentation for details on setting the master/slave settings.



- If using RAID configuration with SATA or SCSI drives, make sure the RAID card is installed correctly.

Bootable CD drive is not detected.

Make sure the Boot settings in the BIOS setup utility is configured to allow the CD drive to be the first bootable device.

New memory modules installed are not detected.

Do the following:

- Make sure the memory modules are properly seated on the DIMM slots.
- Make sure the memory modules comply with the system requirements.
- Make sure the memory modules have been populated according to the system requirements.

External device connected to a USB connector does not work.

Do the following:

- Reduce the number of external devices connected to a USB hub.
- Refer to the documentation that came with the device.

Cannot connect to a server

- Make sure the network cable is securely attached to the correct connector at the system rear panel.
- Try a different network cable.
- Make sure you are using the correct and the current drivers.
- Make sure the driver is loaded and the protocols are bound.

## Problems with the network

Network status indicator does not light.

Do the following:

- Check the cabling and network equipment to make sure that all cables are properly connected.
- Reinstall the network drivers.
- Try another port or hub on the switch.

Diagnostics pass but the connection fails.

- Make sure the network cable is securely attached.
- Make sure you specify the correct frame type in the NET.CFG file.

The controller stopped working when an adapter was installed.

- Make sure the cable is connected to the port from the onboard network controller.
- Make sure the other adapter supports shared interrupts and your OS supports shared interrupts.
- Try reseating the adapter.

The adapter stopped working without apparent cause.

- Try reseating the adapter first, then try a different slot if necessary.
- The network files driver may be corrupt or deleted. Delete and reinstall the drivers.
- Run the diagnostics.

Network activity indicator does not light.

Do the following:

- Make sure the correct network drivers are loaded on the system.
- Network might be idle. Try accessing the server.

Server hangs when the drivers are loaded.

Change the PCI interrupt settings.

System boots when installing a PCI card.

System Server Management feature require full-time standby power. This means some parts of the system have power going to them whenever the power cord is plugged in, even if you have turned the system power off with the power button on the front panel. If you install a PCI card with the AC power cord plugged in, a signal may be sent to command the system to boot. Before installing a PCI card, you should always:

- Power off the server.
- Unplug the AC power cord(s) from the server.

There is problem with the application software.

Do the following:

- Verify that the software is properly configured for the system. Refer to the software installation and operation documentation for instructions on setting up and using the software.
- Try a different version of the software to see if the problem is with the copy you are using.
- Make sure all cables are properly connected.
- If other software runs correctly on the system, contact your vendor about the defective software.

No characters appear on the screen.

Check the following:

- Is the keyboard functioning? Test it by turning the “Num Lock” function on and off to make sure the Num Lock light is functioning.
- Is the video monitor plugged in and turned on? If you are using a switch box, is it switched to the correct system?
- Are the brightness and contrast controls on the video monitor properly adjusted?
- Is the video monitor signal cable properly installed?
- Does this video monitor work correctly if plugged into a different system?
- Is the onboard video controller enabled in the BIOS setup?
- Remove all expansion cards and see if the system boots. If successful, add the cards back in one at a time with a reboot between each addition.
- Make sure the memory modules comply with the system requirements.
- Make sure the memory modules have been populated according to the system requirements.
- Remove the memory modules and reseat them.
- Make sure the CPU comply with the system requirements.
- Make sure the CPU is populated according to the system requirements.

If you are using a video controller board, do the following:

- 1 Verify that the video works using the onboard video controller.
- 2 Verify that the video controller board is fully seated in the mainboard connector.
- 3 Reboot the system for changes to take effect.
- 4 If there are still no characters on the screen after you reboot the system and POST emits a beep code, write down the beep code you hear. This information is useful for your service representative.
- 5 If you do not receive a beep code and characters do not appear, the video display monitor or video controller may have failed. Contact your service representative or authorized dealer for help.

Characters are distorted or incorrect.

Check the following:

- Are the brightness and contrast controls properly adjusted on the video monitor? Refer to the documentation that came with the video monitor.
- Are the video monitor's signal and power cables properly connected.
- Is the video monitor working correctly when plugged into a different system?

System cooling fan do not rotate properly.

If the system cooling fan is not operating properly, it is an indication of possible system component failure.

Check the following:

- Is the power indicator lit? If not, see "Power indicator does not light." on page 76 .
- Are any other front panel LEDs lit?
- Have any of the fan motors stopped? Use the server management subsystem to check the fan status.
- Have your fans speeded up in response to an overheating situation?
- Have your fans speeded up in response to a fan that has failed?
- Is the fan's power connector properly connected to the mainboard?
- Is the front panel board cable connected to both the mainboard's front panel board connector?
- Are the power supply cables properly connected to the mainboard?
- Are there any shorted wires caused by pinched cables or have power connector plugs been forced into power connector sockets the wrong way?

## BIOS POST error beep codes

The following table lists the POST error beep codes. Prior to system video initialization, BIOS uses these beep codes to inform you of error conditions. The beep code occurs only when a critical error occurs or when the BIOS fails to boot to the operating system. Not all error conditions are supported by the BIOS beep codes.

Number of beeps	Description
1, 2, or 3	Memory error
4 - 7 or 9 - 11	Fatal error indicating a possible serious system problem
8	Video error

## Troubleshooting BIOS POST error beep codes

The following table lists the possible beep codes that may occur while using the system and is followed by solutions to the situation.

Number of beeps	Troubleshooting action
1, 2, or 3	<ul style="list-style-type: none"> <li>• Make sure the memory modules are properly seated on the DIMM slots.</li> <li>• Make sure the memory modules comply with the system requirements.</li> <li>• Make sure the memory modules have been populated according to the system requirements.</li> </ul>

<b>Number of beeps</b>	<b>Troubleshooting action</b>
4-7, 9-11	<ul style="list-style-type: none"><li>• Indicates a fatal error. Consult your dealer or local Acer representative for assistance.</li><li>• If beep codes are generated even when all PCI cards are absent, consult your system manufacturer's technical support.</li><li>• Check for a malfunctioning expansion card. If beep codes are not generated when all expansion cards are absent, one of the expansion cards is causing the malfunction. Insert the cards back into the system, booting the system between each card addition, until the beeps occur again to reveal the malfunctioning card.</li></ul>
8	<ul style="list-style-type: none"><li>• Make sure the video adapter is properly seated on the expansion slot.</li><li>• If the video adapter is an integrated part of the mainboard, the board may be faulty.</li></ul>





# Appendix A: System management utility

This appendix shows you how to install the ASM software package and gives information about the software program and utilities bundled with your server.

# Overview

Your Altos G320 server supports the following system management utilities:

- ASM (Acer Server Manager)

This utility allows you to spot errors or potential trouble spots in the network servers through a single management station. For details go to page 90.

- RAID configuration utility

The system may be bundled with a utility for changing the RAID configuration of your SATA or SCSI hard disk. For details go to page 92.

# ASM

Acer Server Manager is a server management tool. It is specially designed to help spot errors or potential trouble spots in the network servers through a single management station. ASM can send a query to a remote server over the network to request information such as system hardware and software configuration, system resource usage, and system performance.

The complete ASM package consists of two major components — the ASM Agent and the ASM Console. The ASM Agent are the servers to be managed on the network. The ASM Console is a Windows-based monitoring station that communicates with the ASM Agents and can be installed on any agent's workstation on the network.

## System requirements

ASM requires TCP/IP connectivity between the ASM Agent and the ASM Console.

### ASM Agent

- Intel Pentium 4 (800 MHz), Intel Xeon (800 MHz), AMD Opteron (1000 MHz) or higher processor
- 512 MB of RAM
- SATA/SCSI hard drive with at least 100 MB free hard disk space
- Microsoft Windows 2003 Server/Advanced Server or Red Hat Enterprise Linux 3.0 operating system

### ASM Console

- Intel Pentium 4 (800 MHz), Intel Xeon (800 MHz), AMD Opteron (1000 MHz) or higher processor
- 256 MB of RAM
- SATA/SCSI hard drive with at least 100 MB free hard disk space
- Microsoft Windows 2003 Professional/XP/Server/Advanced Server or Red Hat Enterprise Linux 3.0 operating system

## System setup

Make sure that the system meets the requirements listed before proceeding. You may also want to change your screen resolution to 800 x 600 or higher for optimum viewing.

### Installing ASM Agent

- 1 Log in to the managed server using the Administrator account.
- 2 Insert the EasyBUILD Management CD into the server's ODD. The installation sequence will automatically be displayed.
- 3 Select the option for ASM installation. The installation wizard will be initialized.
- 4 Follow all onscreen instructions to complete the installation.

For detailed instructions on installing ASM Agent, refer to the ASM User's manual.

To launch the program, on the Windows taskbar click on the **Start** button, point to **Programs**, select **Acer Server Management Suite** then click **ASM Agent**.

### Installing ASM Console

- 1 Log in to the target Windows-based PC using the Administrator account.
- 2 Insert the EasyBUILD Management CD into the server's ODD. The installation sequence will automatically be displayed.
- 3 Select the option for ASM installation. The installation wizard will be initialized.
- 4 Follow all onscreen instructions to complete the installation.

For detailed instructions on installing ASM Console, refer to the ASM User's manual.

To launch the program, on the Windows taskbar click on the **Start** button, point to **Programs**, select **Acer Server Management Suite** then click **ASM Console**.

# RAID configuration utility



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**Caution!** Using the RAID configuration utility erases all data previously saved in the hard drives. Make sure that you backup important files before starting the configuration process.

## SATA RAID configuration utility

The SATA RAID configuration utility allows you to configure and manage RAID arrays. The configuration utility resides in the BIOS and is independent of the OS. With the configuration utility, you can:

- Select a configuration method for physical arrays and logical drives
- Initialize logical drives
- Rebuild failed drives
- Check data consistency

For detailed information on how to use this utility, refer to “Appendix B: SATA RAID configuration” on page 93.

## SCSI RAID configuration utility

The SCSI RAID configuration utility allows you to change the default RAID configuration, such as the system volume of your SCSI hard disk.

For detailed information on how to use this utility, refer to “Appendix C: SCSI RAID configuration” on page 113.

# Appendix B: SATA RAID configuration

This appendix provides a description of the embedded server technology and explains how to use the utility for configuring and managing RAID systems.



# Overview

Embedded with the system BIOS is a configuration utility that provides server RAID technology and enables you to configure disk arrays and logical drives. The embedded server RAID technology supports four SATA ports. These ports support data transfer rates of up to 3.0 Gbps. Refer to the "Mainboard layout" on page 11 for the location of the SATA ports.

## Features

The embedded server RAID technology include the following features:

### BIOS features

- RAID support before the operating system loads
- Automatic detection and configuration of disk drives
- Ability to handle configuration changes
- Support for Interrupt 13 and Enhanced Disk Drive Specification
- Support for RAID levels 0, 1, and 10
- Special handling of error log and rebuilding
- ROM option size of 64 KB
- Automatic resume of rebuilding and check consistency
- Support for BBS (BIOS Boot Specification). If available in the system BIOS, this allows the user to select the adaptor from which to boot. (Specification v1.01, January 11, 1996)
- Co-existence with SCSI and CD devices
- 48-bit LBA support for read, write, and cache flush functions
- Independent stripe size configuration on each logical drive
- Ability to select a logical drive as boot device
- Support for PPM (POST Memory Management) for the BIOS memory requirement (Specification v1.01, November 21, 1997)
- Enhanced disk drive support (Specification 2.9, revision 08, March 12, 1998)
- Industry-standard EBDA
- S.M.A.R.T. notification at POST
- Run-time BIOS support for device insertion or removal

- Independent support for WC, RC, and UDMA (direct memory access)
- Support for Stop On Error during bootup
- Support to disable/enable BIOS state

#### Driver features

- Special interface for configuration information, configuration changes, and manageability
- Optimized disk access
- Support for RAID levels 0, 1, and 10
- Support for Stand-by and Hibernation



**Note:** The following items require Spy Service to be running in order to work.

- Error logging in the operating system event log and on disks
- Support for online mirror rebuilding
- Support for check consistency for mirrored disks
- Bootable RAID 0, 1, and 10
- Customized messages specific for OEM (original equipment manufacturer)
- Soft bad block management

#### Manageability/Disk console

The features you can use to manage the logical and physical disks in the system include

- Configuration information display (in RAID configuration utility and Hyper configuration utility)
- Support for RAID levels 0, 1, and 10
- Online mirror rebuilding (in RAID configuration utility)
- Online consistency checks (in RAID configuration utility)
- Array management software
- Error logging and notification
- Support for power management features
- Support for hot device installation and removal

- Automatic resume of rebuilding on restart
- Support for manual rebuild
- Physical drive roaming
- Independent stripe size configuration per logical drive
- Ability to create up to eight logical drives per array
- Auto-configuration support of newly added physical drive
- Support for hot spares
- Support for disk coercion
- Array initialization support (fast and normal)
- Offline data (RAID 1) verification with auto-recovery mechanism
- Ability to prioritize configurable tasks (for online rebuild, check consistency, migration, and expansion)
- Logical drive availability immediately after creation
- Variable stripe size options from 8 to 128 KB

## Configuring arrays

Configure the physical disk drives in arrays. An array can consist of one to four physical disk drives, depending on the RAID level. A RAID 0 array can consist of one to four physical drives, while a RAID 1 array consists of two. A RAID 10 array consists of four drives.

## Configuration strategies

You have two choices when creating a RAID array.

- Maximizing fault tolerance  
You can maximize fault tolerance to protect against loss of data by using mirroring. Use mirror configuration (RAID 1) to attain this objective.
- Maximizing logical drive performance  
You can maximize logical drive performance by using striping. Select striping configuration (RAID 0) to attain this objective.  
RAID 10 combines both striping and mirroring to provide high data transfer rates and data redundancy.

## Assigning RAID levels

Only one RAID level can be assigned to each array. The table below displays the drives required per RAID level.

RAID Level	Minimum number of physical drives	Maximum number of physical drives
0	One	Four
1	Two	Two
10	Four	Four

The factors you need to consider when selecting a RAID level are listed in the table below:

Level	Description and use	Pros	Cons	No. of Drives	Fault Tolerant
0	Data divided in blocks and distributed sequentially (pure striping). <b>Note:</b> Use for non-critical data that requires high performance.	High data throughput for large files	<ul style="list-style-type: none"> <li>No fault tolerance.</li> <li>Data is lost if a drive fails.</li> </ul>	One to four	No
1	Data duplicated on another disk (mirroring). <b>Note:</b> Use for read-intensive, fault-tolerant systems.	100 percent data redundancy, providing fault tolerance.	<ul style="list-style-type: none"> <li>More disk space required.</li> <li>Reduces usable disk space to the size of the smallest drive.</li> <li>Reduced performance during rebuilds.</li> </ul>	Two	Yes

Level	Description and use	Pros	Cons	No. of Drives	Fault Tolerant
10	A combination of RAID 1 and RAID 0. Use for medium-sized databases or any environment that requires a higher degree of fault tolerance and moderate to medium capacity.	Provides both high data transfer rates and complete data redundancy.	<ul style="list-style-type: none"> <li>• More disk space required.</li> <li>• Reduces usable disk space to the size of the smallest drive.</li> <li>• Reduced performance during rebuilds.</li> </ul>	Four	Yes

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## RAID CU (configuration utility)

The RAID CU configures disk arrays and logical drives. The CU resides in the BIOS and is independent of the OS. With the CU you can:

- Configure physical arrays and logical drives
- Initialize logical drives
- Rebuild failed drives
- Check data consistency

### Using the RAID CU

#### Starting RAID CU

- 1 Before attempting to use the RAID CU, make sure to set the **Configure SATA as** parameter in the BIOS setup to RAID.

To set the SATA channels as RAID:

- (1) During bootup, press **F2** to enter the BIOS setup screen.
- (2) Select the **Advanced** menu, then press **Enter**.
- (3) Under the Advanced menu, select **Drive Configuration**, then press **Enter**. The following window appears.



- (4) Set **Configure S-ATA as** parameter to **RAID** mode.



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**Note:** The Configure S-ATA as parameter is disabled when the ATA/IDE Mode is not set to Enhanced mode.

- (5) Save settings and exit the BIOS setup utility.  
The system reboots automatically.
- 2 During bootup, press **Ctrl + E** to run the RAID configuration utility.  
Hold down the **Ctrl** key while you press **E**. The Management menu appears.

## Exiting RAID CU

Press **Esc** when in the utility's Management menu to exit the utility.

# Configuring arrays and logical drives

## Configuration guidelines

We recommend using drives with the same capacity in a specific array. If you use drives with different capacities in an array, the CU treats all these drives as if they have the capacity of the smallest drive.

The number of physical drives in a specific array determines the possible RAID levels that you can implement with the array. RAID 0 requires one to four physical drives, RAID 1 requires two physical drives, and RAID 10 requires four physical drives.

## Physical drive parameters

You can change the write policy and read policy in the physical drives, but not the logical drives.

## Logical drive parameters

For the logical drive you can change the RAID level and stripe size. The table below contains descriptions of the logical drive parameters.

Parameter	Description
RAID level	The number of physical drives in a specific array determines the RAID levels that can be implemented with the array. RAID 0 requires one or two physical drives. RAID 1 requires exactly two physical drives. RAID 10 requires four physical drives.
Stripe size	The stripe size parameter specifies the size of the segment written to each disk in a RAID configuration. You can set the stripe size to 4, 8, 16, 32, 64, or 128 KBs. The default is 64 KB. A larger stripe size produces higher read performance. If your computer regularly performs random read requests, choose a smaller stripe size.

To configure arrays and logical drives you can select from the following options:



- Quick configuration
- Detailed configuration

For detailed configuration of arrays and logical drive, you can choose from the following configuration methods:

- Easy configuration
- New configuration
- View/Add configuration.

## Quick configuration

### Performing quick configuration

The quick installation steps for configuring arrays and logical drives:

- 1 Boot the system.
- 2 Press **Ctrl + E** to enter the CU screen.
- 3 Select a configuration method.
- 4 Create arrays using the available physical drives.
- 5 Define the logical drive(s) using the space in the arrays.
- 6 Initialize the new logical drive(s).

Refer to the "Performing detailed configuration" section for detailed configuration instructions. To ensure best performance, select the optimal RAID level for the logical drive you create.

## Detailed configuration

### Performing detailed configuration

Follow the instructions below to configure arrays and logical drives:

- 1 Start the RAID CU

Make sure the **Configure SATA as** parameter in the BIOS setup is set to RAID mode. See “Start the RAID CU” on page 104 for detailed instructions.

- 2 Select a configuration method

Choose from the following methods for configuring arrays and logical drives:

- Easy configuration
- New configuration and view/add configuration

#### Easy configuration

In Easy configuration, the CU associates each hard drive with a single logical drive. If logical drives have already been configured, the CU does not change their configuration.

To create arrays using Easy configuration:

- 1 Under the Management menu, select **Configure, Easy Configuration**, then press **Enter**. The Configuration menu appears.

- 2 Use the arrow keys to select a specific drive, then press the spacebar to associate the selected drive with the current array.

In the menu, the selected drive's indicator will change from `READY` to `ONLIN A[array number]-[drive number]`. For example, `ONLIN A1-3` means disk drive 3 in array 1.

- 3 Press **Enter** after you finish creating the current array.

- 4 Press **F10** to select the configurable arrays, then press the spacebar to select the array.

The logical drive configuration screen appears. The logical drive configuration screen displays the logical drive number, RAID level, logical drive size, number of stripes in the physical array, stripe size, and state of the logical drive.

- 5 Set the RAID level for the logical drive by highlighting **RAID**, then press **Enter**.  
A list of the available RAID levels for the current logical drive appears.
- 6 Select a RAID level, then press **Enter**.
- 7 Set the RAID logical drive size and stripe size.
- 8 When you have defined the current logical drive, select **Accept**, then press **Enter**.
- 9 Repeat step 5 to step 8 to configure additional logical drives.
- 10 Save the configuration when prompted.
- 11 Press **Esc** to return to the Management Menu.
- 12 Initialize the logical drives. Refer to "Initializing logical drives" on page 107 for detailed instructions.

#### New configuration and view/add configuration

New Configuration and View/Add Configuration associate logical drives with partial and/or multiple physical arrays. New Configuration deletes the existing configuration and replaces it with the configuration that you specify. View/Add Configuration lets you display or modify an existing configuration.



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**Caution:** The New Configuration option erases the existing configuration data when you save the new array configuration. If you do not want to delete the existing configuration data, use View/Add Configuration.

To configure a disk array using New Configuration or View/Add Configuration:

- 1 Under the Management menu, select **Configure, New Configuration** or **View/Add Configuration**, then press **Enter**. An array selection of the devices connected to the current controller appears.
- 2 Use the arrow keys to select the specific drives to include in the array, then press the spacebar to associate the selected drive with the current array.

The indicator for the selected drive changes from `READY` to `ONLIN A[array number] - [drive number]`. For example, `ONLIN A1-3` means disk drive 3 in array 1.

- 3 Press **Enter** after you finish creating the current array.
- 4 Press **F10** to configure logical drives.
- 5 Set the RAID level for the logical drive by highlighting **RAID**, then press **Enter**.

A list of the available RAID levels for the current logical drive appears.

- 6 Select a RAID level, then press **Enter**.
- 7 Set the logical drive size by selecting **Size**, then press **Enter**.

By default, the logical drive size associates the available space in the array(s) with the current logical drive.

- 8 Set the stripe size.
- 9 After defining the current logical drive, select **Accept**, then press **Enter**.
- 10 Save the configuration when the CU prompts you to do so.
- 11 Initialize the logical drives. Refer to "Initializing logical drives" on page 107 for detailed instructions.

# Initializing logical drives

You can initialize the logical drives using batch initialization or individual initialization. Batch initialization can simultaneously initialize up to 40 logical drives. While individual initialization can initialize single logical drives only.

To initialize logical drives using the batch initialization method:

1 Under the Management menu, select **Initialize**.

2 Use the space bar to select the logical drive.

The logical drive name is highlighted in yellow. To de-select the logical drive, press the space bar again.

3 Press **F10** .

4 Select **Yes**, then press **Enter** to begin initialization.

A graph displays the progress of the initialization until it is completed.

5 After the initialization is completed, press **Esc** to return to the previous menu.

When you press **Esc** while initialization is in progress, the following options appear:

- Stop - The CU stores the percentage of the initialization already completed. When you restart initialization, it continues from the last percentage completed rather than from zero percent.
- Continue - Initialization continues normally.
- Abort - Initialization is completely aborted. If you restart initialization, it begins at zero percent.

To initialize logical drives using the individual initialization method:

1 Under the Management menu, select **Objects**, then **Logical Drive**.

2 Select a logical drive, if there is more than one configured, then press **Enter**.

3 Select **Initialize**, then press **Enter**.

4 Select **Yes**, then press **Enter** to begin initialization.

A bar graph displays the initialization progress.

- 5 After the initialization is completed, press **Esc** to return to the previous menu.

When you press **Esc** while initialization is in progress, the options — Stop, Continue, and Abort appears. See previous section for detailed explanation.

## Rebuilding failed disks

A manual rebuild is used to rebuild failed drives. The CU allows manual rebuild for an individual drive or a group of drives. The rebuilding of a group of drives is done through batch mode.

To rebuild a group of failed drives:

- 1 Under the Management menu, select **Rebuild**.

A device selection window displays. In the window the failed drives' indicators will display FAIL.

- 2 Use the arrow keys to select the drives to be rebuilt, then press the spacebar to select the highlighted drives for rebuild.
- 3 Press **F10**, then select **Yes** at the confirmation prompt.

The selected drives' indicators will change to REBLD.

- 4 After the rebuild is completed, press **Esc** to return to the Management menu.

To rebuild an individual drive:

- 1 Under the Management menu, select **Objects**, then **Physical Drive**.
- 2 Use the arrow keys to select a specific drive, then press **Enter**.
- 3 Select the **Rebuild** option from the menu, then respond to the confirmation prompt.
- 4 After the rebuild is completed, press any key to display the previous menu.



**Note:** If you have auto-rebuild enabled in the BIOS, the rebuild begins as soon as you enter the RAID CU. If auto-rebuild is disabled, you have the option to rebuild by following the procedure in above section.

# Checking data consistency

The Check Consistency feature verifies the correctness of the redundancy data in the selected logical drive and allows the CU to automatically correct any differences found in the data.

This feature can be used only on a RAID 1 logical drive, to verify the data consistency between the mirrored physical drives. When a data inconsistency is found, the CU can either report and fix the inconsistency or report the inconsistency only, depending upon the parameter selected in the Adapter settings.

To start a consistency check:

- 1 Under the Management menu, select **Check Consistency**, then press **Enter**.
- 2 Use the space bar to select a logical drive.



.....

**Note:** A consistency check can only be performed in logical drives that supports RAID level 1. If you select a RAID 0 logical drive, a check consistency cannot be performed message appears. To deselect a logical drive, press the space bar again.

- 3 Press **F10**.
- 4 Select **Yes** to start consistency check, then press **Enter**.
- 5 After the consistency check is completed, press **Esc** to return to the previous menu.

When you press **Esc** while the check consistency is in progress, the following options appear:

- Stop - The CU stores the percentage of the check consistency already completed. When you restart the check consistency, it continues from the last percentage completed rather than from zero percent.
- Continue - Check consistency continues normally.
- Abort - The check consistency is completely aborted. If you restart check consistency, it begins at zero percent.



# Troubleshooting

## Problems and suggested solutions

The following table describes possible problems you might encounter while using the CU, along with suggested solutions.

Problem	Suggested solution
<p>Drives are not detected or The system hangs when the adapter ROM for the embedded SATA software RAID scans the SATA ports.</p>	<ul style="list-style-type: none"> <li>• Make sure that the cable ends are connected properly.</li> <li>• Make sure that the power cables to the drives are connected properly.</li> <li>• Change the cables.</li> <li>• If everything fails, change the drive(s).</li> </ul>
<p>Operating system does not boot.</p>	<ul style="list-style-type: none"> <li>• Check the system BIOS configuration for PCI interrupt assignments. Make sure some interrupts are assigned for PCI.</li> <li>• Make sure that you have properly selected the Boot Device Priority in the BIOS setup. See "Boot" on page 66 for more information.</li> </ul>
<p>An error occurs while reading the configuration data on a drive.</p>	<p>The drive has failed and needs to be replaced.</p>
<p>There is no existing RAID configuration on any of the drives connected to the system and the message "Intel Embedded Server RAID Technology Not Configured" displays.</p>	<p>Do the following:</p> <ol style="list-style-type: none"> <li>1 Run the RAID configuration utility. See "Start the RAID CU" on page 104 for detailed instructions.</li> <li>2 Select a configuration method to configure the drive(s).</li> </ol>
<p>BIOS reports a mirrored array is in degraded mode.</p>	<ul style="list-style-type: none"> <li>• Make sure all drives are properly connected and powered on.</li> <li>• Reconnect, replace, or rebuild any drive that has failed.</li> </ul>

<b>Problem</b>	<b>Suggested solution</b>
One of the hard drives in a mirrored (RAID 1) array has failed.	Replace the failed drive with another drive that has the same or greater capacity.
A new drive with no configuration is installed into the bay which is already part of a mirrored (RAID 1) array.	Run the RAID configuration utility to configure the new drive. Mark the drive as one of the following: <ul data-bbox="453 400 930 512" style="list-style-type: none"><li>• Failed - If the AutoRebuild option is disabled in the CU.</li><li>• Rebuilding - If the AutoRebuild option is enabled in the CU.</li></ul>
A new drive with no configuration is installed into the bay which is already part or not part (is by itself) of a striped (RAID 0) array.	Run the RAID configuration utility to configure the new drive.

# Appendix C: SCSI RAID configuration

This appendix explains how to use the SCSI RAID configuration utility for creating a RAID volume in SCSI drives.

# Configuring the SCSI/SCSI RAID HBA

This section shows how to create a RAID 1 (mirror) volume. This feature requires the installation or presence of a LSI Logic 53C1030 SCSI controller.

## Using the SCSI HBA setup utility

During bootup, press **Ctrl+C** to enter the LSI Logic Configuration screen.

### Loading the HBA default settings

- 1 In the LSI Logic MPT SCSI setup screen, press **F2**.
- 2 Select **Global Properties**, then select **Restore Defaults**.
- 3 Press **Esc**, then select **Save changes then exit this menu**.
- 4 Select **53C1020/53C1030**, then press **Enter**.
- 5 Select **Restore Defaults**, then press **Enter**.
- 6 Press **Esc**, then select **Save changes then exit this menu**.

### Creating a RAID 1 volume with a hot spare disk

- 1 In the LSI Logic MPT SCSI setup screen, select **53C1020/53C1030**, then press **Enter**.
- 2 Select **RAID Properties**, then press **Enter**.
- 3 In the Array Disk field, press the spacebar.

If you change the settings in the Array Disk field, the following messages appear:

*F3 - Keep Data (Create 2 disk arrays)*

*Delete - Erase Disk (Create 2 to 6 disk arrays)*

- 4 Press the **Delete** key to erase all data on the screen.
- 5 In the Hot Spare field, press the spacebar.

If you change the settings in the Hot Spare field, the following messages appear:

*WARNING: Data on drive will be LOST!*

*Press DELETE if data loss OK or any other key to cancel.*

- 6 Press the **Delete** key to ignore.
- 7 Press **Esc**, then select **Save changes then exit this menu**.
- 8 To close the utility and reboot the server, follow the steps below:
  - (1) Press **Esc**, then select **Exit the Configuration Utility**.  
*The Global properties saved. Hit any key to reboot message appears.*
  - (2) Press any key to reboot the server.

## RAID volume initialization

After you create the RAID volume and saved the changes, the disk controller will automatically initialize the RAID volume. LSI Logic 53C1030 supports background initialization, there's no need to wait for the initialization to complete. Close the LSI Logic Configuration Utility after saving the changes.

## Using the MegaRAID configuration utility

Turn on the system. When prompted, press **Ctrl+M** to enter the MegaRAID configuration utility. After a few seconds, the Management menu appears.

### Loading the RAID card default setting

- 1 Under the Management menu, select **Objects**, then select **Adapter**. The current adapter settings appear.
- 2 Select **Factory Default**, then **Yes** to load the default settings.
- 3 Press **Ctrl+Alt+Del** to reboot the server.

### Creating a RAID 1 volume

- 1 After rebooting the server, press **Ctrl+M** to enter the MegaRAID Configuration screen. The Management menu appears.
- 2 Select **Configuration**. The Configuration menu appears.
- 3 Select **New Configuration**, then select **YES**. An array selection window displays the devices connected to the current controller.
- 4 Use the arrow keys to select a specific drive, then press the spacebar to associate the selected drive with the current array.

In the menu, the selected drive's indicator will change from **READY** to **ONLINE A**[array number]-[drive number].

For example **ONLINE A1-2** means disk drive 2 in array 1.

- 5 Add two drives to the current array, then press **Enter**.
- 6 Press **F10** to configure the logical drives. The default RAID level for 2 disk drives is RAID 1.
- 7 Select **Accept** to use the default setting, then press **Enter**.
- 8 Press **Enter** again to end the array configuration.
- 9 Select **YES to Save Configuration**, and press any key to return to the Configuration menu.

### Assigning a hot spare disk

- 1 Under the Configuration menu, select **Add/View Configuration**.
- 2 Use the arrow keys to select a specific drive, then press **F4** to set the drive as a hot spare disk.

- 3 Select **YES**. In the menu, the selected drive's indicator will change from *READY* to *HOTSP*.
- 4 Press **Esc** to end the array configuration.
- 5 Select **YES to Save Configuration**, then press any key to return to the Configuration menu.

### Initializing a RAID volume

- 1 Press **Esc** to return to the Management menu.
- 2 Select **Initialize**. All logical drives will appear under Logical Drives.
- 3 Using the spacebar, select the drive that you want to initialize. The selected drive becomes yellow.
- 4 Press **F10**, then select **YES** to start initialization.
- 5 When initialization is complete, press any key to continue.
- 6 Press **Esc** to return to the Management menu.
- 7 To exit the utility and reboot the server, follow the steps below:
  - (a) Under the Management menu, press **Esc**.
  - (b) Select **YES**.
  - (c) Press **Ctrl+Alt+Del** to reboot the server.
- 8 Install an Operating System to the RAID array.



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